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IN EPILEPSY... PREREQUISITE FOR PARTICIPATION: THERAPY

With the use of medications, epileptic students may be enabled to participate in many of the same activities as other students.[1]

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KAPSEALS CELONTIN is effective in the treatment of petit mal and psychomotor epilepsy. It provides effective control with a minimum of side effects, frequently checks seizures in patients refractory to other anticonvulsant medications, and does not tend to precipitate grand mal attacks in those patients with combined petit mal and grand mal seizures. For this reason, CELONTIN is useful in treating patients with more than one type of seizure and can be given in combination with Dilantin.[7-10]

CELONTIN Kapseals (methsuximide, Parke-Davis) 0.3 Gm., bottles of 100.

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Editorial

Youthful Offenses in Modern Culture

The F.B.I. reported that 21,229 major crimes were committed in Oklahoma during 1958 or 929 crimes for each 100,000 residents. In the same report appears the statement that the number of juveniles arrested for serious crimes rose by 8.1 per cent over the previous year. Our attitude toward juvenile delinquency has been a detached one which is possible because we have considered conditions as prime causes which are in reality symptoms of disease in our society. A basic understanding of the social forces involved should lead the members of the profession to assume a more dominant role in the study and management of the problems of youth in their communities. To this end *The Journal* is quoting extensively from the Tenth A. Walter Suiter Lecture given by Harry L. Shapiro, Ph.D., Curator of Anthropology, American Museum of Natural History, New York, N.Y., before the New York Academy of Medicine.*

An Old Problem

"Youthful offenses, or in the current terminology, juvenile delinquency, is nothing new. Like a great many other consequences of community living, it has been with us for a long time, and as a phenomenon it is widely dispersed. For these reasons it is possible to see in it the multiple perspectives of time, space, and culture.

"However, what seems ominous to many of us is the apparent increase in the frequency of such offenses against society, the violence associated with them, and the latent fear that the consequences may become out of hand and thus threaten our own safety and security. One has the distinct impression, from the kinds of remedies various people are suggesting, that these fears have overwhelmed good sense, or that the dimensions and the nature of the problem are totally misconceived.

"I propose to make a distinction here between juvenile delinquency and individual criminal acts by youths. The former has become commonly associated with a distinctive type of adolescent and, I believe, arises primarily out of social maladjustments. It is behavior characteristic of adolescents acting in association with others. Or to put it another way, it is behavior that emerges from the interaction of a group of adolescents. An adolescent who has joined a gang because of neighborhood pressure, or for other social reasons, and who commits offenses in concert with other members of the gang, or even alone but according to the traditions of gang behavior, or even one who is committing anti-social acts because of various kinds of social influence, is in my definition a juvenile delinquent. His behavior may be reprehensible to society at large, but he is acting according to a definite and established pattern, acceptable and even obligatory for his gang or for his contemporaries who set the values and standards of his world. This is quite different from the behavior of an adolescent who, overwhelmed by personal passion, frustration or rebellion, commits a criminal act. The offense may be the same, but the motivation and the cause are different. In the one case there is a social mechanism that channels the behavior; in the other, the action is personal and not primarily social. Now, obviously, such a distinction may break down in many instances, but it has a reality that explains some of the fluctuations in the frequency of juvenile delinquency and offers some hope that such behavior may be controlled by social measures since it springs from social causes.

"Before proceeding further, however, I want to make clear my conviction that juvenile delinquency is a complex phenomenon arising out of a variety of causes. The overt behavior pattern itself may have a misleading aspect of uniformity, but like another kind of headache, it masks a number of dif-

*Youthful Offenses in Modern Culture: Bulletin of the New York Academy of Medicine, 35: 341, (June) 1959.

ferent ailments. Single cure-alls are as likely to be effective in the one case as in the other.

"Since juvenile delinquency falls into a kind of social pattern of its own, it is pertinent to ask, perhaps, naively, what is society and why are offenses against it reprehensible? Society, of course, is a community of people who live within a common, organized system of institutions and/or customs. The members of such a community share, accept, and anticipate certain standards of behavior from each other. Society may be other things as well, but at its minimum it is at least this much. Now such a group, little or large, simple or complex, can function only if a sufficient number of its people abide by its laws or traditions. If everyone operated independently, or contrary to basic expectations, the society would collapse into chaos.

". . . one of the primary functions of any organized community is to train the young to the standards of behavior expected of them according to their role and place in it. The process of social conditioning begins almost from birth. At first the child is exposed to controls exerted by the mother and by the family. Rewards and punishments of varying kind and degree are meted out by parents, siblings, and other members of the family, according to the inherited patterns of the culture to which the family belongs. As the child grows up, he or she is exposed to the disciplines of still wider circles of individuals and institutions. In our society, for example, the school becomes an important surrogate as the child emerges from the dominance of the family. But in many other ways, intricate and subtle, the pressure of the larger society continues to mold and reinforce values, attitudes, and behavior. The literature we read, advertisements, television, radio, theaters, movies, the heroes and heroines evolved by our culture, and other multifarious influences affect the child, the adolescent, and the adult.

"Out of all this come individuals who conform subconsciously and without effort to the patterns of behavior developed by their society or culture. . . .

"Social behavior, therefore, is essentially a kind of automatic conformity to the standards and values of the community. . . .

Time and Space

"There have been times in Western civilization when economic conditions have borne so heavily on the economically depressed classes that mere survival was at stake. Certainly in pre-revolutionary Paris, and in the London of the early nineteenth century, economic factors must have played a not inconsiderable part in the delinquency, juvenile as well as adult, that flourished in those eras. The wonder is that, considering how badly the poor fared then and in other periods of European history, the rate of juvenile delinquency was not greater than it was. It is a measure of how strong social conditioning must be if it can restrain a hungry and depressed section of the population, for although poverty and economic oppression have existed for long periods of time in European history, violent revolutions are, after all, relatively rare. Indeed, when one looks at other areas where poverty has also been extreme, for example in India, in pre-Communist China, and even in Puerto Rico a generation ago, the juvenile delinquency is not commensurate with what one would expect if economics were the primary factor. For these reasons I do not consider economic factors alone as a very important element in our current frequency of delinquent behavior. Among the two most recent populations to settle in New York City, southern Negroes and Puerto Ricans, the economic conditions here, poor as they may be, are better than they were in the South or in Puerto Rico. The increase in delinquency in these groups has apparently taken place after their settlement in this urban area.

"There are two aspects to youthful offenses: there is the offense, a species of social behavior or misbehavior; and there is the offender. Although they are inseparable, it might be useful to look at them as two separate sides of the same coin—social dynamics and the individual.

"From my prefatory generalizations about society, it is obvious that if the agencies

through which society conditions the young and determines their behavior are defective, or are working at cross purposes with traditional standards, the process of training and indoctrination will, to that extent, be deficient. This can come about in a variety of ways, too numerous and intricate to analyze here. In general, large complex societies, compared with small homogeneous communities, always have a tendency to develop subcultures and other, even more marked, forms of social and cultural heterogeneity. This in itself need not be undesirable. But when social and cultural heterogeneity encourages conflicting tendencies within the society, the results can become significant in terms of juvenile delinquency.

"Let me explain this point in a little more detail. There are, it seems to me in this connection, two forces that to some extent integrate and intensify a certain type of disharmony in modern society. One is the trend toward urbanization, and the other is the rate of technological change. Even in fairly homogeneous nations, the city generally occupies a peculiar cultural position. It is a place where traditional bonds between social classes are loosened, where distance between groups widens, and where older patterns tend to break down. Here all the divergent elements of a nation assemble and create a highly complex interplay of conflicting currents. It is no accident that revolutions are apt to occur in urban centers where the disparate and disaffected elements of a society are apt to meet, and history itself demonstrates how important the city is in the initiation of new ideas, new processes, and in the progress of civilization itself.

"In modern societies, and nowhere more than in the United States, these characteristics of urbanization are no longer restricted to the cities, but have spread nationwide. As a result, the distinction between the city slicker and the country bumpkin is rapidly disappearing.

"All this has happened in our time because in the last century the pace of technological change has gradually accelerated to an unprecedented degree. In the past, the social effects of technological progress spread slowly and could be more easily absorbed by society as a whole. Nowadays our technological revolution not only contributes to the stresses of urban life, but carries them with great rapidity throughout the nation.

"If we think primitive man has been hard pressed by the rapid changes forced upon him by contact with Western civilization, our plight, although a self-induced one, is equally profound. We have only to think of the frequently cited effect of the automobile to realize how fast our culture and our way of life have been changed by its introduction. Within a little over a generation, the car has remodeled profoundly almost every aspect of living, and has created problems that we have not yet learnt to solve. If we multiply the effect of this single technological change by the host of changes that have beset us—the cultural influence of radio, television, movies as examples—it is no wonder that it often seems that one generation has difficulty understanding the next. For the effect of all these introductions into our lives is not the same on our children as it is on those who were nutured in a different environment. Influences that simply do not penetrate our cultural skins, or if they do are rejected, exert a profound influence on our children. The inevitable result, when changes of this kind come thick and fast, is to develop an increased cultural separation between generations and, consequently, a fruitful source of conflict between them. In normal, primitive societies, or in our own more isolated communities, comparable cultural separation between generations did not exist.

"The significance of this for some aspects of juvenile delinquency lies in the fact that the family, which was the traditional center in our society for adolescent activity, has lost much of its authority. Adolescents who in an earlier day expected and were expected to participate in family affairs, to use their homes as the scene of their social activities, and who were anyway unable to get very far away, do so less in these days. The young man in the family car, or in his own jalopy, prefers to take his 'date' as far from home as possible. Various commercial establishments for his entertainment are now easily accessible to him. His contemporaries set standards of behavior which his

family have little chance of discouraging. The upshot of all this is an increasing separation of adolescent from family influences, a lack of the sympathy and understanding that, shared in common by parents and offspring, can serve to preserve the values that govern behavior.

"The kind of conflict that grows out of such conditions can be seen perhaps more clearly in parallel situations among primitive people than they can in complicated modern societies. One of the tragedies that has with increasing frequency overtaken, hundreds on hundreds of primitive cultures in our own time is this, perhaps inevitable, weakening of the traditional patterns by new and often revolutionary influences. The introduction of Western civilization to many primitive groups is by the very nature of the contact rapid and overwhelming. It has meant a loss of prestige for the ancient codes and values and the development of conflict between the old and the new, resulting frequently in behavior that is strikingly like what we call juvenile delinquency. Such dislocations hit the adolescent in particular. He has not been hardened in the mold of his inherited tradition as his elders have been, and his often inadequately based interpretation of the new does violence to the community's patterns. Although such advocates of the new ideas may eventually convert the community to a new synthesis, the transition is often a period of stress and strain. Many groups have tragically foundered in the passage.

"But conflict within modern society, arising out of the rapidity of change and the consequent difficulty of social values to keep pace with it or to adjust such changes to traditional values, is further complicated, particularly in the United States, by several other factors.

Modern Culture

"From its very beginnings, the United States has been characterized by social mobility. The various groups that have successively immigrated here have each found themselves liberated from the rigid bonds that kept them within inherited social classes. Although most of the immigrant groups entered the hierarchy of our society at or near the bottom, they found in it more abundant opportunities for advancement, a more fluid social organization, and generally speaking, fewer barriers to a rise in the economic, and consequently the social scale, than they would have in the old countries. Indeed, we as a people have always been proud of this. We speak of our country as the 'land of opportunity'; we affirm that any American child can aspire to be president. It is a cherished value that most of us would not have otherwise. But it can and does create a highly competitive situation—healthy and perhaps desirable under certain conditions. When, however, symbols of status replace reality and become a measure of success, where success is all important, their possession becomes essential. Now most societies are highly sensitive to status symbols, but ours in addition affirms that everyone should want them, that those who do not are lacking in American spirit and drive and are failures. Keeping up with the Joneses permeates all our communities. Adolescents, who normally want to be as like their fellows as possible and have what they have, are particularly susceptible to status symbols. The urge to achieve them is enormous. But if the deterrents are weak, if social conditioning is defective, the urge expresses itself in delinquency.

"This urge is underlined by the mass media so typical of our times. The movies and other popular forms of entertainment set before the youth of modern society a galaxy of heroes and heroines, a picture of luxury, of morals and of life that is depicted in the most alluring manner, frankly designed to appeal to the largest possible audience. The unreality of this world and its meretricious standards are not easily penetrated by youngsters of little experience. The ideals displayed are purely commercial and artificial.

"Insofar as the domination of mass entertainment by the standards of crude commercialism has been permitted and accepted by the public, its products do arise from the culture. But they do not represent the best of it and may, in fact, be inimical to it. Their effects can scarcely be good. How

bad they are, is difficult to assess. If the delight that many adolescents take in them (without exhibiting much evidence of discrimination) is any index, one would have to say pretty bad. I am far from claiming that the false values and the anti-social goals glorified by the movies, television, and comics lead directly to juvenile delinquency. But in a world where material things have an exaggerated value and where the young are encouraged to want them desperately, cinematic fantasies that seem to make it all desirable and easy to attain cannot fail to have some effect. Such influences can only contribute and reinforce tendencies either latent or budding. To see in all the glamor of a movie production varieties of socially disapproved behavior admired and rewarded, can certainly not be said to act as a deterrent.

"History has added another element of tension and conflict to American society that is especially characteristic. Because the United States was settled by successive waves of migration, we have almost from the beginning been multi-national in origin and multi-racial. Each new migration wave brought to the society and culture developing here patterns of belief, custom and behavior that were different, sometimes repugnant to American standards. It would require a great deal of time to go into the interplay of forces that this experience (repeated over and over) released. The plain fact is that immigrants into this new cultural and social milieu were usually at a loss to understand fully the values and subtleties of their adopted country.

"In the United States this situation, full of potential conflict, was aggravated by several circumstances. The immigrants were generally drawn from economically depressed classes, poorly educated and ill equipped to contend with the demands of the American scene. Often they spoke an incomprehensible language, practiced a strange religion, and followed customs that struck Americans as odd or bizarre. The older inhabitants often distrusted and were deeply suspicious of the newcomers. But perhaps as significant as any single factor, many of the waves of immigrants were overwhelming in number, so that native Americans felt inundated and threatened. With lack of understanding on either side, the results were inevitable. The immigrants were either ignored as a necessary evil, rejected as inferior, or actively fought as a menace.

"The immigrants, themselves, were more often than not insulated to a certain extent from these attitudes. Occupying the lowest economic levels, their contacts were limited and their demands on society at a minimum. Unfamiliar with American mores or the English language, they huddled together in special quarters where they could find comfort and support from their cogeners. Anyway, they were grateful for whatever improvement migration to the United States had brought to their lot. Even the wretched conditions, by native American standards, in which they lived were sometimes better than they had known. In effect, the immigrant groups, by virtue of their numbers and their residence pattern, were able to establish themselves in a transplanted, if temporary, sub-culture of their own, recognizably different from the prevailing patterns in the United States.

"Their children, the second generation, presented a totally different problem and one that in our urban centers has set the stage for much of what we call juvenile delinquency. Upon this generation, born in this country of parents born in another, fell the real burden of bridging the gap between the mores and culture of their parents and those of their native country. The immigrant parents had been formed by one society and equipped by it with guide posts serviceable enough even for this new world. The children, once they were exposed to the molding influences of the United States, were eager to become Americans, to speak English, and to abandon the old country ways. The normal respect for the authority of the parent suffered grievously in these circumstances, since the American-born children looked upon their parents with a curious mingling of unease and shame at their foreignness, irritation with their outmoded standards when they interfered with their own, and superiority over their ignorance.

And without authority and respect, the transfer of traditional values from parent to child is difficult. The continuity of generations upon which society depends is broken or loosed. And the parents, bewildered by the rebellion of their children, were often unable to cope with them since the new society in which they now lived did not offer the support they might have received in the old country. Thus the family, so vital a link in social conditioning, frequently was unable to exercise its function in these immigrant subcultures that were slowly and painfully adjusting themselves to a new milieu.

"Children cut loose from the familial control were easy victims of the unhealthy influences of the street society that flourished, and too many became delinquents. It has been a recurrent fact that each immigrant group in our crowded urban areas has tended to display this typical expression of social maladjustment in a high frequency of juvenile delinquency.

"The tendency has more often than not been aggravated by corroborative circumstances that I think are worth mentioning. One is the need that most of us feel to be a part of a group. Where the parental culture was repudiated, the second generation children sought to find a place in the society and culture of the United States. The astonishing thing is how many succeeded, but the casualties were also high. Since the family could not provide an acceptable social framework, many second generation adolescents identified themselves with the nearest substitute—the company of others in the same situation—and a kind of new culture and society evolved in the streets and neighborhoods. This was a spontaneous outgrowth, but one not disciplined by traditional controls. Often it was a harmless association that might be dropped like a cocoon as the adolescent made progress in his integration with the larger society. But frequently enough it led to anti-social and predatory behavior because the rewards and the prestige system of these groups demanded it. And once committed, many young people found it difficult to break away.

"How much the growth of such groups or gangs arose out of rejection by the dominant culture is impossible to say. The impression one gets from various sociological studies, from conversation, and from the literary genre that deals with minority groups, strongly reinforces the conviction that it is not a negligible factor. If the path of integration with the larger social group is blocked and the aspirant is thrown back, he may all the more readily affiliate himself with these marginal units.

"I have already mentioned that juvenile delinquency is often high in second generation groups in our crowded urban areas. But the phenomenon is not confined to this country, although, because of our population history, it is especially notable here. In European cities where immigration has settled similarly foreign and alien masses, the same tendency toward delinquency arises and for the same reasons.

"That gang society is culturally orientated is particularly evident in the way these marginal adolescents organize themselves. They emblazon their jackets with insignia that show the world they belong. They wear clothing that is almost a kind of uniform. They form tightly knit groups with intense loyalty to the group and to one another, and on the other hand, hostility for any outside group. Courage or daring is admired and used as a mechanism for establishing status and prestige. Initiation, sometimes with elaborate ritual, may mark entry into the group.

"All these characteristics are typical of primitive, cultural organizations. And it is more than interesting that they should become associated with gang life in our modern cities. Adolescents, not finding satisfying social mechanisms in their own environment, create them. The deep need to belong, to have a place, and to express oneself socially cannot be denied. One is almost tempted to say that some reaction of this kind is a good and hopeful sign. The long process of human adaptation to culture has endowed us all with a capacity and consequently a desire for association with our fellows. In many ways we cannot express ourselves fully, exercise deep-seated drives, and obtain certain types of satisfaction unless we do so through social mechan-

isms, formal or informal. The point I am making, therefore, is that the gang structure of adolescent society in certain areas of our cities is, under the circumstances, a natural one. Its very existence reflects a strong capacity for socialization that cannot be discouraged. The unfortunate thing is its development outside the restraints of the traditional structure of society. The spontaneous emergence of gangs to fill social voids at least implies that, directed by useful social channels, this drive could be salvaged and prove valuable.

"A common confusion about gangs is the assumption that they are primarily organized to commit offenses. I think this is fundamentally wrong and as long as it exists will interfere with a realistic understanding essential to dealing with the problem of juvenile delinquency. The adolescents who organize and join these groups do not, in most cases, do so deliberately in order to prey on society. The offenses against society are in a sense incidental. They are expressions of organizations which, having sprung up to fill a gap that has developed in society, have not been domesticated or fitted into the traditional behavior patterns. Unregulated, and in a sense free-wheeling, these ephemeral groupings tend to develop individualistic behavior that can and does lead to offenses. It is important to recognize that such youthful group behavior is initially quite different from the behavior of adults committed to a life of crime. The key to the former is social fellowship. This does not, of course, mean that youthful gangs may not be fruitful sources of recruitment for the activities of the latter.

"One of the impressive things in a so-called primitive society is the participation of every one in both community and family activities. The process begins at a very young age, and suitable tasks are assigned to children we would consider nowhere near ready for responsibility of any kind. Indeed, this is an important part of education and training for adult skills and future roles. I have seen fathers take their small sons on their expeditions and initiate them in the traditional knowledge of a breadwinner. And little girls, hardly more than babies, begin to learn household tasks and even take full charge of their younger sibs. Thus these children from an early age play a real and significant role in their family life. They have an established place in the society, they discharge obligations placed on them with astonishing reliability, and they have a dignity that comes from such responsibilities.

"Modern society, Western society, the United States in particular, has relegated the child more and more to a peculiar nonparticipating membership in society. There are reasons for this. More and more of us live in apartments that don't belong to us, and for which we have no special responsibility except to pay the rent. Any repairs or chores our apartments require we expect to be attended to by paid mechanics or superintendents. We don't shovel the snow from the sidewalk, we don't fire the furnace or sift the ashes afterwards, even if these tasks were there to do in this age of automatic gas or oil burners. Even minor repairs seem too difficult when there is someone to do them for us and, anyway, why should we do these things for someone else's property? The chores that in an earlier age in this country were the allotted task of most boys no longer exist, and those who live in typical urban environments have virtually no responsibilities in the economy of the family.

"Besides this freedom from a contributing role in the family, boys nowadays are not permitted to take on full-time employment. The appalling abuses of child labor in the nineteenth century evoked a public revulsion that gradually brought about labor laws that were based on humanitarian principles and not on social ones. They had the effect of prohibiting all young people under the age of 16 from working. This, combined with compulsory school attendance, has served to delay our adolescents from the assumption of a place in our economy except as consumers.

Impact of Education

"Besides all this, education has become for most Americans a key with which to open the doors of advancement and success. Every responsible parent sets as high an educational goal as possible for his offspring, and will sacrifice a great deal to further such ambitions. The extraordinary

increase in the enrollment of our upper schools is a testimony of this national premium on education. No one will, I think, seriously deny the values of education, although many might argue about the virtues of our particular system. But there is no denying that, for whatever causes, a not inconsiderable number of the juvenile members of our society are not making the best use, or even a good use, of the educational system that is provided. They go to school —they are physically present in the classroom, but the spirit is not there.

"This is a dangerous observation to make, particularly in a democratic society which not only believes firmly in education, but even more, that every child is entitled to a college education. I am not challenging this belief, although I think it can be done. What I am saying is that an uncomfortably large number of boys and girls, in high schools particularly, are reluctant scholars, uninterested in their work and potential sources of trouble. This lack of interest may reflect bad preparation, poor pedagogical techniques, psychological difficulties, adolescent preoccupation with maturing physiological processes, social influences like those I have already described, or plain intellectual inability to deal with concepts of academic subjects. But whatever the cause, adolescents who are unwilling scholars, who refuse to do their work at school or at home, whose interest is neither captured nor in any way engaged by their studies, are at a loose end. Since they cannot work and have no domestic duties or chores, they are ripe for the life of the streets, gang associations, and other forms of diversion that easily fill the vacuum. Since young adolescents are normally high-spirited, full of energy and eager for adventure, the stage is set for behavior that can readily become anti-social.

Maturity and Responsibility

"It is a curious blindness on our part to fail to recognize that as we lengthen the period during which the young are segregated from social and economic responsibility and are treated as immature, their physical development is not equally delayed. In earlier days and in other places, youths of 16 to 17 were already carrying a man's load. It was no uncommon thing in our own immediate past for youths only a little older to have already commanded ships and to have led men in dangerous enterprises. And in many primitive groups, even provision for the sex life of adolescents of comparable age is arranged in a socially acceptable manner. To our failure to face the fact that our adolescents, too, at this age are acquiring the strength of men, the desires of men, but not the restraints that come from discipline, responsibility, or socially satisfying activities, must be laid some of the blame for the conditions we vociferously deplore.

"In this necessarily rapid survey of the phenomenon of juvenile delinquency, I have, I am all too aware, omitted to mention a number of factors that some observers have stressed in their commentaries. For example, the spread of drug addiction has been often cited as a significant determinant of crime. And I think the evidence can scarcely be denied that the need to obtain money to buy drugs has driven many adolescents to commit offenses. But from my point of view, this is a secondary cause arising from the kind of basic social maladjustments I have been describing.

"Similarly, I would not deny that broken homes, psychiatric situations, and indeed a number of other possibilities also, might be cited. But these, too, seem to me to follow from a more fundamental social and cultural malaise. You may recall that I began with the conviction that juvenile delinquency is, in fact, a complex phenomenon.

"The remedies consequently, in my opinion, must attack the basic social and cultural situation that forms the medium in which juvenile delinquency thrives like germs. To offer such palliatives as more play-grounds, desirable as they are, does not begin to touch the heart of the disease. It requires, to begin with, the kind of attention it has rarely received—sympathetic and objective investigation at a basic level. And, if my analysis has any validity, it will demand equally basic social measures that will not be easy to apply. Society will have to decide whether the effort is worth while."

Subheadings are the Journal Editor's—not the author.

Scientific Articles

Post-Operative Reaction Following Mitral Commissurotomy

FRANK H. AUSTIN, M.D.

Frank H. Austin, M.D., graduated from the University of Oklahoma School of Medicine in 1946 and has since been certified by the American Board of Internal Medicine.

Doctor Austin is a consultant to the United States Public Health Service at the Indian Hospital, Lawton, Oklahoma. He is a Fellow of the American College of Physicians, a member of the American Heart Association, the American Diabetes Association and the Oklahoma Association of Internists.

AN INTERESTING CASE of rheumatic mitral stenosis which was carefully followed by the author is presented. The patient had had rheumatic heart disease for several years with a diagnosis of mitral stenosis for at least six years. He had been evaluated for mitral commissurotomy by several clinics and it was finally decided that mitral commissurotomy should be carried out. This was accomplished and the patient had for approximately a year and one-half episodes of chest pain, fever and dyspnea. The case was also complicated by grand-mal convulsions of obscure origin. The case is presented to point out the operative selection of patients for mitral commissurotomy, the difficult post-operative problems that may occur and the follow-up results. A discussion of rheumatic fever, rheumatic heart disease, and migraine headaches is presented.

Case Report

The patient is a 42 year old white male accountant who had fever and joint pains as a child which were not recognized as manifestations of rheumatic fever until later. He was reported to have been rejected by the Army in 1940 with a diagnosis of rheumatic heart disease. The patient had several episodes starting in 1953 of precordial pain with marked dyspnea that would come on with no apparent cause. They quite commonly would come on early in the morning on arising. The patient would become cyanotic with the episodes but would be relieved after four or five minutes of rest.

The patient was admitted to Memorial Hospital on February 19, 1953, with pain in his right costovertebral angle. An intravenous pyelogram was compatible with the findings of a stone in the ureter. His urine showed innumerable white blood cells. These symptoms subsided and the urine cleared. The patient also at that time had a GI series which showed pylorospasm and duodenitis. The patient at this time had frequent complaints of epigastric and vague abdominal distress. These symptoms have continued throughout the course of his present illness.

He was readmitted November 30, 1954, to Memorial Hospital with chest pain, dyspnea and cyanosis. This was my first contact with the patient. Physical exami-

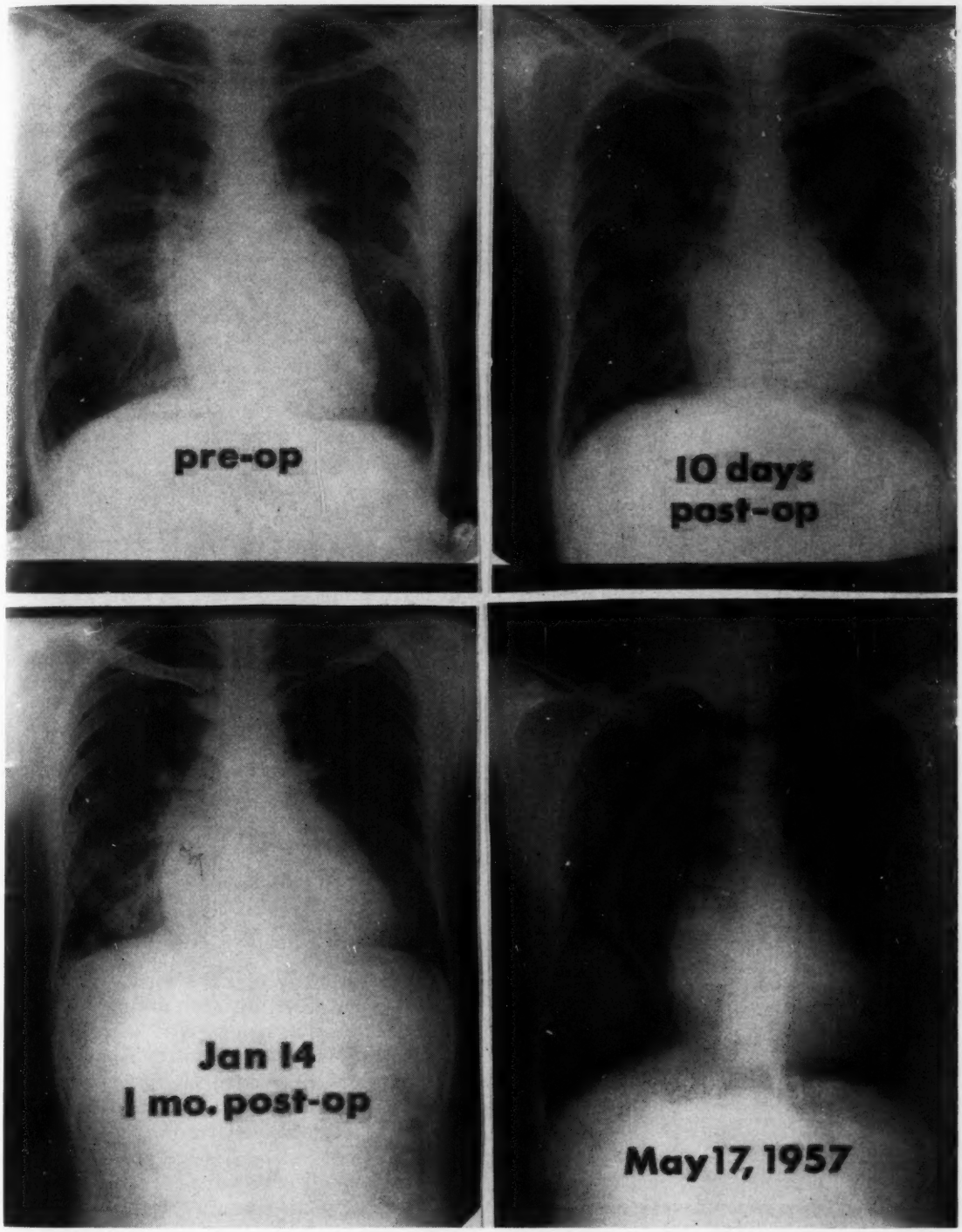
nation revealed a well developed, well nourished white male. Pupils were round and equal and reacted well to light. Fundi and retinae appeared normal. There was no distention of neck veins. There was a presystolic rumble at the apex with a loud snapping first mitral sound and a low pitched diastolic rumble at the apex. The second pulmonic sound was accentuated. The heart was fibrillating at a ventricular rate of 80 per minute. It was noted that the patient's legs and feet became very cyanotic in the dependent position and were quite cold in the recumbent position. Because of the recurrent episodes of chest pain, cyanosis and dyspnea, the patient was advised at this point to have a mitral commissurotomy.

The patient had been seen at Scott-White Clinic prior to this time and had been advised to have a mitral commissurotomy. He was later seen at Mayo Clinic where a mitral commissurotomy was thought not to be indicated at that time. He was scheduled for operation six months before this time in Oklahoma City but the patient decided against the procedure at the last minute.

The patient was admitted to Wesley Hospital, Oklahoma City, and a mitral commissurotomy was performed on December 11, 1954. No difficulty was found in fracturing the heart valves. There was no mitral regurgitation noted. The pre and post-operative films are shown to demonstrate the marked change in cardiac contour in the post-operative films. The patient did well post-operatively and felt very well for two weeks following the procedure. He was seen December 28, with chest pain, fever of 101, sedimentation rate of 43 and a white blood count of 13,800. Examination of the heart revealed a systolic click and very short systolic murmur over the precordium. The diastolic murmur could not be heard. The patient's color and general condition appeared to be good. He was considered to be having an episode of post-operative pericarditis and no specific therapy was given.

Two days later on December 30, 1954, the patient became more acutely ill with chest pain, shortness of breath and fever, and was admitted to Memorial Hospital with a temperature of 99.4. There was marked increase in cardiac dullness and chest films showed enlargement of the cardiac contour. Electrocardiogram showed auricular fibrillation and digitalis effects. At this point it was thought that the patient was undoubtedly having a post-operative reaction of a non-specific nature or he was having a recurrence of rheumatic fever. He was started on Cortisone, 50 milligrams every six hours and was discharged from the hospital after an eight day total stay. On January 10, 1955, the patient was doing well, had less pain, no fever and Cortisone was reduced to 25 milligrams every six hours. The sedimentation rate was 14 mm. in one hour at that time. On January 12, 1955, the patient had recurrence of low grade fever and Cortisone was increased to 50 milligrams every six hours. On January 14, pulse increased from patient's usual 80 to 100 per minute. He became extremely dyspneic with rales in both bases and appeared severely ill with pulse at times up to 150. Respirations were 38. Systolic blood pressure was as low as 90 millimeters of mercury. The patient was then taken off of Cortisone and given a short course of ACTH and then treated only with bed rest and salicylates. The patient gradually improved with the heart size returning to normal. Sedimentation rate on January 14, had been 36 millimeters and on discharge from the hospital on February 3, was 16 millimeters in one hour. The patient was barely home when he was readmitted with enlargement of the heart, fever and dyspnea. On this admission the anti-streptolysin titer was 50 units which was considered to be against activity of rheumatic fever. Throat culture showed beta-hemolytic streptococcus. The patient was started on penicillin. He was treated with aspirin and occasional injections of ACTH and he gradually improved and was discharged on March 16, 1955. He then remained quite well and was ambulatory at home. His only medication was digitalis and aspirin.

On the morning of March 29, 1955, the patient ate his breakfast as usual and laid on his bed. His wife noted that his reactions were peculiar and that he had a "silly ex-



pression." I was able to reach the patient in five minutes and observed these actions. He seemed unresponsive although he did respond to painful stimuli and questions. His answers, however, were irrelevant. The patient then had a grand mal convulsion and was given 7.5 grains of sodium amytal intravenously which terminated the convulsion

but there was marked excitement after the episode. He was observed in the hospital for two days. It was thought at that time that the patient had had a cerebral embolus arising from his heart. Amazingly, his blood pressure and pulse and cardiac size showed no change from his previous examination. The patient was placed on phenobarbital in small doses and he remained well, although unable to do any work of a constructive nature. He complained that he was "unable to think well" and that he was nervous a good deal of the time. His cardiac symptoms remained essentially unchanged until August of 1955 when he had a two or three day episode of chest pain, fever, and dyspnea. Electrocardiogram showed some changes in ST and T waves of Leads II, III, AVF and V4, V5, and V6 of a non-specific nature. The heart shadow on x-ray showed transitory enlargement.

The patient had another grand mal convulsion October 12, 1955. At that time the cardiac status was unchanged except that the electrocardiogram at that point showed left ventricular strain pattern with depressed ST segments of V4, V5, and V6.

The patient was readmitted on December 30, 1955, until January 5 for observation of chest pain. He was not acutely ill at that time. He responded promptly to 80 units of ACTH Gel intramuscularly. He had only very slight fever on admission. The patient again remained asymptomatic until April of 1956, when he was admitted for a period of five days. The electrocardiogram and chest x-ray did not show any change. We thought that this was an extremely mild episode of post-operative reaction.

Since that time the patient has been followed in the office with monthly Bicillin injections of 1,200,000 units. He is also receiving Mysoline, two tablets daily, one capsule of Dilantin, grains 1½ daily, and phenobarbital, grains 1 at bedtime.

He has been seen at various intervals by the operating surgeon and the internist in charge of his case in Oklahoma City. They have agreed with the diagnosis of post-operative reaction and the management in general. The patient has also been seen by neurologists and psychiatrits. The electroencephalogram on two occasions showed definite spikes in the region of the left hemisphere and left occipital as well as the bi-occipital region. There was also abnormal buildup on hyperventilation in the range of the 4 to 5 second spikes. It was on the basis of this finding that the patient was thought to need both phenobarbital and Dilantin. He was on Dilantin three times daily, but because of skin rash, it was replaced by Mysoline.

The etiology of the patient's epileptic seizures has never been clear-cut. The patient gave a history of migraine headaches intermittently all of his life and had two severe episodes in January and May of 1954. On one occasion, he had an episode of blindness lasting several minutes. This occurred with one of his severe pounding, throbbing headaches. Since that time he has had no further headaches. In May, 1954, his episode consisted of weakness of the left side of his face for two weeks. At that time he was seen at Scott-White Clinic, and he was advised to have ligation of his femoral veins and it was advised also that he be on Dicumarol therapy. At that time, apparently, they thought that emboli were arising in the leg veins. It was the opinion of the consultants that tumor was unlikely. Scar tissue formation was thought to be a possibility following a thrombosis. Repeat electro-encephalogram on December 20, 1955, showed no essential change. At the point of writing, the patient has had no further episodes of convulsions and he has continued on his anti-convulsant medicine.

The patient has been examined every six to nine months. His weight is unchanged. Blood pressure averages 150/90. Pulse remains irregular; at a rate of 80. The heart reveals a systolic murmur at the apex with a systolic click present. The murmur, as nearly as can be determined, has been unchanged since just after his mitral commissurotory. No diastolic murmur can be heard. The lungs remain clear. There is usually slight sensitiveness in the abdomen but no localizing signs. Neurological examination is essentially negative. The patient has a number of complaints which are thought by several to be on a psychoneurotic basis. His

electrocardiogram shows auricular fibrillation with no primary T-wave changes. Chest x-ray reveals heart size to be essentially that of one and two years ago. GI series have shown no abnormalities.

Discussion

Rheumatic fever has been termed the disease that "licks the joints, but bites the heart." This is certainly true in this case; there had been joint symptoms as a child that were not recognized as being serious, however, his entire life was changed by the episode of rheumatic fever that started in early childhood. The basic lesion of rheumatic fever is fibrinoid degeneration and necrosis of the collagen of connective tissue.[1] The fibrinoid lesion with the inflammatory cells which accompany it form the Aschoff body, which is the hallmark of rheumatic fever. Many and various tissues may be involved in the "rheumatic process" to include the heart (endocardium, pericardium and myocardium) blood vessels, brain, joints, subcutaneous tissue as well as the kidney and lung.[2]

Great strides have been made in the understanding of the pathogenesis, etiology, treatment and prevention of rheumatic fever. Although rheumatic fever is not an infectious disease, it is caused by a toxic or allergic reaction to beta hemolytic streptococcus infections that occur in the upper respiratory tract. The latent period between the infection in the throat and the rheumatic manifestations varies from 9 to 25 days.[2] The incidence of rheumatic fever seems to correlate closely with epidemics of certain strains of beta hemolytic streptococcus. Certain areas of the United States have a higher incidence of rheumatic fever which appear to be related to the colder climates. Some of the most perplexing problems in the solution of rheumatic fever control arise when one is faced with the high incidence of positive throat cultures for beta hemolytic streptococcus in which there is no clinical disease. It is generally agreed that all beta hemolytic streptococci should be eradicated, however, recent work by Cornfeld, Werner, et al[3] would cast doubt on the practicability of such programs. They found a wide difference between the number of carriers and actual infections. Even in children with respiratory infections and positive culture there was difficulty in correlating the two. It is clinically well known also that many cases of rheumatic heart disease give no history of previous respiratory infection.

Penicillin is the most potent antibiotic against the beta-hemolytic streptococcus. It is recommended in definite terms by the American Heart Association for treatment and prophylaxis. This advance has been of widespread benefit in reducing the incidence of rheumatic fever and in preventing the reactivity of the disease in persons known to be susceptible to the disease.[4]

In general, rheumatic fever is most common in children and in those who seem to have what is thought to be an "inherited susceptibility." Rheumatic fever is one of the more difficult diseases to diagnose. It requires close correlation of history, physical examination, and laboratory studies. The clinical picture of rheumatic fever was studied and reported by Massell et al.[5] It compares in scope and findings with many other reports. Their studies were carried out on 490 patients under the age of 17. Chorea was observed in 23 percent of the patients. The incidence of the other principal manifestations of rheumatic fever, when cases of pure chorea were excluded was found to be: significant murmurs, 53 percent; pericarditis, 6.3 percent; congestive heart failure, 7.9 percent; prolongation of the P-R interval, 25 percent; subcutaneous nodules, 12 percent; erythema marginatum, 11 percent; fever, 89 percent; elevation of the erythrocyte sedimentation rate, 92 percent and elevation of the anti-streptolysin titer, 82 percent.

When one is faced with making a specific diagnosis of rheumatic fever, all of the major manifestations may be useful at one time or another. Murmurs that are definite and chorea are the most sure signs of rheumatic fever. Beyond these typical manifestations, the clinician must weigh carefully the importance of history, physical findings and laboratory reports. Many times the clinician is not able to observe directly

the joint involvement and it behooves him to obtain carefully the description of "leg pains," particularly when a murmur of doubtful significance is present. It is this author's feeling that just as much harm can be done by "over" diagnosing rheumatic fever as "under" diagnosing it. The stigmata and inconvenience that some patients have to endure from iatrogenic rheumatic heart disease can be as serious as the possible harm that is done to those mild cases that may have been incompletely diagnosed.

The most serious aspects of an attack of acute rheumatic fever are twofold: the immediate damage from congestive heart failure and the later effects of chronic valvular disease. Valvular disease is probably a result of scar tissue formation from the process of healing. All four valves of the heart may be involved with the disease. The most commonly involved is the mitral valve with resulting stenotic scarring and systolic regurgitation. It is with the damage to this valve that this paper most concerns itself.

Recent treatments of the acute rheumatic state have added to the accepted management of rest. Aspirin has been and is still used as an accepted treatment. The use of Adreno-corticotrophic hormone and adrenal steroids is enjoying popularity at this time and they are the most potent weapons that we have in the acute state of this disease. Those who report large series of cases in general reflect that the use of hormones shorten the "active phase" of the disease,[7] although it is important to point out that the complications of corticoids is greater than with aspirin. After the acute stage, treatment is directed at prevention of recurrent attacks by eliminating all beta-hemolytic streptococcus infections. As much caution should be used in advising a patient with known rheumatic fever as to physical activity as should be used in instructing the borderline case mentioned above. Life work, military service and child bearing should be discussed intelligently with the patient.

The progressive disability of the patient with mitral stenosis manifested by severe congestive heart failure, cardiac arrythmias, hemoptysis, and embolization has been a frustrating problem for clinicians until attempts to relieve the obstruction of the circulation at the stenotic orifice were successful. As more experience has been gained by the cardiologist, physiologist, radiologist, anesthetist and the cardiac surgeon, the selection of patients for the operation have been more carefully defined. Cardiac catheterization has been of great value in studying the hemodynamics involved.

With progressive scarring and narrowing of the mitral orifice there is a proportionate increase in pressure in the left auricle which is subsequently transmitted to the pulmonary vasculature. This pressure resistance leads to lessening of cardiac output. With the onset of right ventricular failure, the pressures in the right antrium and great veins becomes elevated. These changes have been calculated to occur when the critical area is approximately one square centimeter.

When pure mitral stenosis is present, the clinician and physiologist have little difficulty in establishing the diagnosis. When mitral regurgitation and stenosis co-exist, the problem becomes more difficult and important. Whereas the surgical technique for stenosis is quite advanced, a procedure for relief of regurgitation has not yet been as successful. Differentiation in difficult cases may be aided by analysis of pulmonary artery wedge and left atrial pressure pulse contours, as well as by analysis of indicator-dilution curves.[8]

Various classifications of patients with mitral stenosis have been suggested as a method of establishing criteria for mitral commissurotomy. Class I patients are those with typical auscultatory findings of apical presystolic murmur, loud first mitral sound and a low pitched diastolic rumble, but with little actual disability or symptoms. The Class IV patient is one usually described as bedfast with intractable heart failure who if not relieved will surely die. Grade II and III patients fit between those two extremes and are frequently difficult to evaluate by all and any means, but do present the most promising group for good operative risk and relief of disability. The patient in this case was thought to be a Class III candidate.

Careful pre and post-operative care are extremely important. The management of these patients is well reviewed by Goodyer and Glenn.[9] After operation, pulse rate and body temperature are increased for 1-4 days. There generally is remarkable increase in cardiac reserve, estimated by the relief of exertional dyspnea although hemodynamic studies may not vary from preoperative findings. Circulatory complications are most often seen in the first week and consist of hypotension and acute congestive failure which are usually accompanied by fast ventricular rates in those with chronic auricular flutter and fibrillation. When cardiac failure persists after apparently adequate valvulotomy, the cause probably is persistent severe pulmonary vascular disease, other valvular abnormalities, recurrent rheumatic activity and recurring pulmonary embolization.

The usual signs of inflammatory reaction after operation are chest pain, fever, pleural effusion, pericarditis and elevated C-reactive protein for 3-10 days. If these symptoms continue or recur, they constitute the syndrome of pleuro-pericarditis after cardiotomy. Usually these symptoms arise within a month of operation. The chest pain is pleuritic with pleural and pericardial effusions of varying degrees. It is interesting why these symptoms may recur at varying intervals over a period of several months. This case report concerns itself primarily with that perplexing problem. The syndrome resembles in many ways, acute rheumatic fever, acute benign pericarditis and the more recently recognized post-myocardial infarction syndrome. Apparently, the presence of this reaction does not affect the long-term results of the operation. Corticoid therapy seems to be effective in shortening the course of the reaction.

The late results of mitral commissurotomy are now receiving critical study as enough patients have been operated on and followed over a period of years. A review by Ellis and Harken[10] of 500 cases points out several important factors that seem to favor a good result. Seventy-eight percent of the patients surviving operation showed significant and usually persisent improvement over the period of observation, which averaged 22 months. The factors which led to less good results were: (1) age over 40; (2) auricular fibrillation; (3) associated aortic valve disease; (4) associated mitral insufficiency of moderate degree or more; (5) a preoperative valve size of more than 1.0 sq.cm.; (6) a postoperative valve size of less than 2.5 sq.cm.; (7) calcification of the mitral valve. An additional benefit mentioned is the apparent protection of the patient from peripheral embolization, although peripheral emboli may still occur in patients who have had previous emboli. The estimated orifice measurement in this patient was 1.0 cm. by the operating surgeon. He noted no calcification and did not think that regurgitation was present. Although there was some question of cerebral emboli in this patient, which was later fairly well disproved, he has actually not had any embolic phenomena.

Another study of 60 patients, followed from two to five years[11] with predominant and symptomatic mitral stenosis, was compared with 11 patients with contraindications to operation, and three patients who refused operation. The total operative mortality was 15%. Sixty-seven percent of 51 survivors of operations exhibited improvement after operation which appeared to be sustained over the period of observation. In contrast, there was virtually no long term improvement in either this or other studies of patients not surgically treated. The patient in this report in spite of his prolonged disability from post-operative reactions appears to have sustained good result.

An even later report of 200 cases followed for five to eight years has summarized some of the recent thinking about the value of mitral commissurotomy.[12] In each, the original condition was mitral stenosis uncomplicated by any other significant valvular lesions. The clearcut symptomatic relief from dyspnea, hemoptysis and edema did not necessarily correlate with any changes in murmurs or abnormal heart size. Indeed, some have used this type of evidence to support the contention that the relief obtained is of psychiatric origin. The authors do not think this tenable because any benefit obtained from "faith" would certainly be dissipated in a period of 5 to 8 years. They

orifice is 4 to 6 square centimeters and that it might be narrowed to 1.5 square centimeters with very little resulting specific cardiovascular symptomatology. It is further postulated that commissurotomy even if not complete is adequate to afford symptomatic relief without again producing significant changes in the electrocardiogram, murmur or heart size. They point out further that cardiac catheterization studies actually do record changes that would explain the symptomatic relief in these individuals.

They report the post-mitral commissurotomy syndrome as occurring in one of 10 patients, but have not observed that it has affected the over-all end result adversely. The patient in this report is "not quite sure" whether his operation was a "success"; however, he has had no further pulmonary edema or cyanosis and his heart contour has clearly been improved. He has shown no evidence of re-stenosis of his mitral valve, but in view of that possibility, he will be watched closely. In an analysis of 1,000 patients by Bailey, et al,[13] 22 had recurrent symptoms caused by re-stenosis. Six of the 22 had given evidence of clinical improvement for one or more years after the original operation but subsequently developed congestive heart failure and died. Necropsy revealed a severe degree of mitral stenosis due to refusion of the parts that had been separated surgically. In the other 16, re-operation was carried out because of the recurrence of symptoms and direct examination of the re-stenosed valves was possible.

Re-stenosis is attributed (1) to the rheumatic nature of the causative disease, (2) to the frequent inadequacy of surgical techniques customarily used and, (3) to the occasional extreme pathological deformation of the valve, which may prevent an adequate separation of the leaflets or which may amount to its transformation into a fibrous stricture. The authors reason that these cases are coming to light because only now has sufficient time elapsed to study the late results of commissurotomy. They urge combined right and left cardiac catheterization preoperatively and repeatedly when indicated to evaluate adequately the problem of re-stenosis. Any re-stenosis should be reoperated and preferably by the right sided approach. This exposure permits a more complete separation of the valve elements and should reduce the incidence of re-stenosis in their opinion.

An interesting study by MacIntosh et al[14] gives another view of the cause for improvement or lack of improvement in mitral commissurotomy. The ventilatory response of the patients with mitral stenosis was measured by the oxygen ventilatory equivalent during steady state exercise. Elevated oxygen ventilatory equivalent values were found in all patients in whom the disease was clinical Grade II or greater. The degree of elevation correlated well with the functional disability of the patient, assessed according to clinical grading. Following mitral commissurotomy, patients exhibit a fall in oxygen ventilatory equivalent consistent with the clinical improvement. These authors feel that this affords a valuable tool for classification of patients with mitral stenosis and to evaluate the results of therapy, but is of no value in predicting the outcome of a case.

Pulmonary diffusing capacity determined during exercise by the steady state carbon monoxide technique was low in each patient with reduced exercise tolerance. No change in diffussing capacity was observed following operation. These results suggest the presence of irreversible lung damage in patients with mitral stenosis. It is postulated that this lung damage may be responsible for the failure of some patients to return to normal exercise tolerance following operation.

Such studies were not done in this case, but there have been several occasions in which it would have been helpful to know more precisely about pulmonary function.

The Migraine Syndrome

Migraine headaches are very common with considerable disability to many people. They are not usually, however, considered as being of serious consequence. The patient herein described had quite typical migraine headaches. The classical descriptions of migraine attacks and their treatment are well

covered in the literature[15] and will not be repeated here. Our patient did have convulsive episodes which were quite obscure in etiology until careful studies seemed to help trace the difficulty to his past history of migraines. The convulsive episodes occurred after the commissurotomy and cerebral embolization was suspected immediately. At one time, long-term Dicumarol therapy was considered necessary. Adequate control of his seizures by anti-epileptic therapy for three years has been attained without the hazards and inconvenience of long-term Dicumarol therapy.

Considerable has been written about intermittent insufficiency of the cerebral arterial circulation. In one recent report[16] the author accepts the fact that occasional migraine attacks may be severe enough to result in cerebral infarction,[17] but points out that it is of rare occurrence. This case, it is thought, represents just such circumstances with resulting scar tissue formation in the cerebral cortex. It is also realized that migraine is considered to be an "epileptic equivalent" by many observers. Some of the vague complaints and bizarre emotional symptoms of this patient might well also be explained on the basis of migraine equivalent.

Summary

The case of a 42 year old white male who had rheumatic fever in childhood and developed typical and "pure" mitral stenosis which progressed to a Grade III classification is presented. Mitral commissurotomy was performed without complication. The critical valve area was estimated at one square centimeter and mitral regurgitation was not thought to be present. Immediately post-operatively a reduction in heart size was noted which has been maintained for a period of over three years. Two weeks post-operatively, the patient developed fever, chest pain and evidence of pleural and precardial effusions. These symptoms lasted about one week but recurred at varying intervals so that a total of five major episodes were observed over a period of 18 months. The over-all result from operation has been good with reduction in heart size and disappearance of the murmur of mitral stenosis. The symptomatic result as viewed by the patient has been difficult to evaluate. He has not shown any tendency to restenosis of the valve.

A discussion of acute rheumatic fever is presented to include etiology, prevention, treatment and pathogenesis of mitral stenosis. The problems related to operative selection, post-operative complications and late operative results are presented.

The patient in this review also had convulsive episodes that were initially thought to be due to emboli from the heart, but subsequent study lead to the diagnosis of cerebral scar tissue formation following a severe migraine episode. A short discussion of migraine headaches is presented.

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Changing Concepts in Dermatology*

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In 1925, Arthur C. Curtis, M.D., graduated from the University of Michigan Medical School where he is now Professor and Chairman of the Department of Dermatology.

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He is Past-President of the American Board of Dermatology and the American Academy of Dermatology and Syphilology.

THE PRIVILEGE of an audience of my peers provokes a sense of deep humiliation in me. Whereas to be asked to talk about the "Changing Concepts in Dermatology" makes me guarded lest I reveal the age and sclerosis of my cerebral vessels.

In talking about disease today, there is always a lingering disposition to say that it was very easy to discover new bacteria when Pasteur began doing his first memorable studies; or to describe a new dermatological disease when Robert Willan brought dermatology out of chaos; or to propound new physical laws when Benjamin Franklin gained immortality by flying a kite in a thunderstorm. To accept as a fact that all diseases have been described, and hence there is no need for the sterile case report or the application of new modalities for the study of old diseases, would make us all eclectics. It was this group which took only the good from that which had been done in the past, but who had no interest in the adaptation of modern techniques to learn the cause of many diseases of unknown etiology in their day.

Our predecessors were great clinicians. They had little to work with except their keen observations and carefully recorded notes. Yet they began a separation of disease states which exists unchanged in many important details to this very day.

Most had training in several disciplines, such as Johnathan Hutchinson, who was a skilled dermatologist, syphilologist, neurologist, ophthalmologist and surgeon; Erasmus Wilson, who was an anatomist, pathologist, dermatologist and Philatripist

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(Cleopatra's needle) and Thomas Addison, who was first a dermatologist and then an expert in Internal Medicine.

During the waning years of the last century physiology had its beginning. Ehrlich has introduced tissue staining with the new AZO dyes, thus greatly enhancing histopathology while allergy, immunity, and antibodies became defined and biochemistry was separated from organic chemistry. With this background of new tools which could be used to study disease states, great strides were made in the understanding of disease in all fields. The clinician was still the strong individualist and dominant man in his field. Kaposi followed Hebra in Vienna; the French and English schools were strong. Boeck was in Oslo, Unna in Hamburg, Felix Pincus in Berlin, Jadassohn in Berne, and Bruno Bloch was in Zurich. The latter, a student of Jadassohn, combined a knowledge of chemistry, physics and bacteriology with a good clinical background. He undoubtedly could be called the father of modern dermatology. His work on the nature of melanin pigmentation in the human skin will immortalize him.

In this country White held the first Chair of Dermatology at Harvard. He later was succeeded by Bowen. Duhring became the head of Dermatology at Pennsylvania while George Henry Fox was at Columbia and the N. Y. P. G. School. Gilchrist held the Chair at both Hopkins and Maryland; Ormsby, Pusey, Montgomery and Hyde were in Chicago, Martin Engman was in St. Louis and Pollitzer at the N. Y. P. G. This group had been trained in Europe and hence those they stimulated to follow in their footsteps, such as George Mackee, Howard Fox, Udo Wile, Chargin, Abramowitz and Morrow, to name a few, likewise returned to the European centers. World War I interrupted the orderly sequence of training in the European centers, and World War II practically ruined them. As a result, centers were becoming excellent units for training of Dermatology and Syphilology in this country, and a few strong men did much to stimulate large numbers of excellent men whose training now was obtained in the USA. For example, Wile, at Michigan, who had succeeded Breakey (an anatomist, and later a dermatologist after the war between the states), had as his first students Stokes, Senear and Kingery. Stokes developed the first Dermatology service at the Mayo Clinic, then left it in the able hands of Paul O'Leary to go to Pennsylvania, taking with him Loren Shaffer. Osborne went to Buffalo with Wende. At Pennsylvania, Stokes completed what Wile had begun, but never finished—an outstanding, modern text on syphilis written by an American. Stokes took Weideman, a pathologist and mycologist, into his Department, brought up Beerman and Pillsbury. The latter had both a basic and clinical training under the tutelage of Stokes, and when he succeeded him at Pennsylvania, was both a good clinician administrator and basic science researcher.

He built the Duhring laboratories, which today give to Pennsylvania an outstanding clinical and research unit. Gardner Hopkins, a bacteriologist-mycologist, was at Columbia, Senear at Illinois, and O'Leary at the Mayo Clinic. Sulzberger, the only European trained member of this group, succeeded Mackee at N. Y. P. G.

Times then changed. More and more cutaneous diseases were found to have systemic components, and Dermatology was rapidly becoming Cutaneous Medicine. Research and investigative activities mushroomed while clinical dermatology was deemphasized in many centers. Like the pendulum which governs the progress of all movements, when started it may swing too far. To me, this is now happening in our own schools. In some, the administrators of the schools or the department heads have sought, as the directors of their dermatology divisions, men whose interest is entirely research medicine. Some of these men have little or no clinical dermatologic training, yet they are given the Chair and expected to teach students and Residents a field of diseases about which they know little. Undoubtedly they will contribute much to research, but they can do little for the teaching or stimulation of the student in the field of Dermatology. This is as bad a situation today as has been the older practice of employing a clinical dermatologist who comes

to the school to teach an hour, or at most, a half day a week.

The trend of modern medicine is towards full time or geographic full time departments. In smaller divisions, the latter plan is often used, so that the staff is in the school and is available during a large part or all of each day. This gives continuity of teaching to the students and Resident staff, while allowing participation by those in one department in the teaching programs of others. The chief of a department today must be a good clinician. He must also have had experience in and appreciate the value of research. His job as "chief" is to find not only the people who are interested in *research,* but the ways and means of subsidizing them, so that it can be done. The many disciplines required of the dermatological resident means that the chief of a service can no longer be "all to everyone." There must be developed or employed those who are expert in the several sub-specialties of Dermatology, so that the training is well rounded in both its clinical and basic aspects. The pyramid then should have at its *top* the *clinician,* and not the basic-science expert. The clinician must also direct the completion of his department by adding people with other clinical interests than his own. He must also weld into this group individuals whose training is in fundamental research. When the pyramid has been completed, a well balanced and solid structure has been created. Only then may one shed a salty tear for the director. He now has become a chair polisher, and his office a bedlam.

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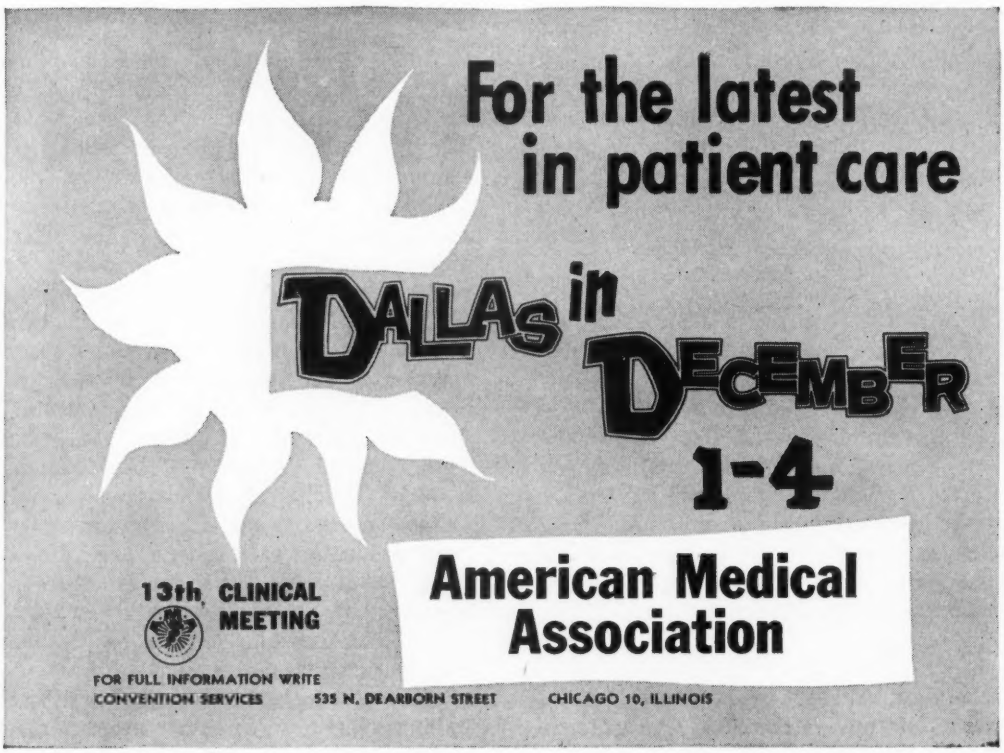

A statistical study of perinatal mortality in Oklahoma hospitals which, because of this, loses its dullness as statistics and becomes a live appraisal of our own work

Perinatal Mortality Rates in Oklahoma Hospitals

1956-57

JOHN H. SHACKELFORD, M.D.

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REMARKABLE PROGRESS has been made in past years in the reduction of infant and neonatal mortality. The last twenty years in Oklahoma have brought a reduction in infant mortality (deaths under one year of age) from 57.1 to 25.5 and in neonatal mortality (under 28 days of age) from 32.8 to 18.2.[1] Control of infectious and communicable diseases contributed in large part to this reduction. Less progress has been made in the more difficult areas of birth injury, congenital malformations, and immaturity. The focus of interest and research has now been shifted to include more attention to factors associated with deaths of infants before or during delivery and the term "perinatal" has come into use to express a combination of fetal deaths and post-natal deaths of live-born infants.

For this study, perinatal deaths are defined to be deaths of live-born infants before the age of 28 days plus deaths of fetuses of 20 weeks or more gestation, and total births are the sum of live births and fetal deaths. The perinatal mortality rate used represents the number of perinatal deaths per 1,000 total births. This definition coincides with Perinatal Period II as defined in *A Guide for the Study of Perinatal Mortality and Morbidity* recently published by the Committee on Maternal and Child Care of the Council on Medical Service of the American Medical Association.

Background

More than 96 per cent of total births in

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Oklahoma now occur in hospitals.[2] The State-wide perinatal mortality rate, therefore, is primarily determined by perinatal mortality rates prevailing among hospital deliveries. While it was to be expected that there would be variation in these rates from hospital to hospital, the extent of this variation has never before been studied for Oklahoma.

The medical staffs of several hospitals have expressed interest in being able to compare the perinatal experience of their individual hospitals with that of other hospitals of comparable size. Basic information necessary for such detailed statistics was available from birth and death certificates filed with the Vital Statistics Office of the State Department of Health, but the hospital of birth had to be identified in statistical punch cards before these statistics could actually be compiled.

Method

Information from each death record of an infant born alive in Oklahoma and dying before the age of 28 days was matched with the corresponding live birth record and a composite statistical card was prepared showing pertinent data from both records. Because of a voluntary interchange of birth data among states, it was possible to include the death in another state of an infant who was born in Oklahoma. Unmatched deaths, i.e., deaths for which no corresponding live birth certificates could be found or secured, were excluded from the study. These numbered 14 over the two-year period. Each fetal death certificate already provided birth and fetal death data together and no matching was necessary for these.

Hospitals were grouped for size according to annual average numbers of births as recommended nationally for studies of this kind.[3] Group I is made up of 7 hospitals having 1,000 or more births annually; Group II contains 15 hospitals having 500-999 births annually; Group III contains 82 hospitals having 100-499 births annually; and Group IV consists of 93 hospitals having less than 100 births annually. These are all licensed hospitals. Births in clinics and physicians' offices were included in the "Not in Hospital" classification.

Only births actually occurring in the hospital were classified to the hospital for the study. An infant born elsewhere and brought to a hospital shortly afterwards was not included in the rate for that hospital even though death may have occurred in the hospital.

Information available for the study was limited to that reported on the certificates of live birth, death, and fetal death. Among these data, important variables affecting perinatal mortality are birth weight, length of gestation, sex, and race. Of these, birth weight and race are thought to be the most important. Perinatal rates have been computed for individual birth weight intervals, and rates adjusted statistically to eliminate differences due to birth weight distributions have been computed for comparison purposes. For individual hospitals in Group I having 5 per cent or more Negro births, rates adjusted statistically for birth weight and race distributions were computed. Similar rates adjusted for birth weight were computed for Group II hospitals individually. For individual hospitals in other groups, frequencies of births at both ends of the birth weight range were too small to permit similar adjustments and are reported as crude rates.

Birth weight intervals in terms of pounds and ounces have been used since that is the way in which weight is reported on certificates. The intervals have been set up to approximate 500 gram intervals beginning with the approximation to 1,000 grams. "Unknown" birth weights were relatively small in number, 1.3 per cent of the total number, and were distributed to birth weight intervals according to the reported period of gestation.[3]

Place of Birth

Total births studied numbered 104,198 of which 102,823 were live births and 1,375 were fetal deaths. The largest proportion of these births, 35.8 per cent, occurred in Group III hospitals as shown in Table 1. Group I hospitals were the birthplaces of

Table 1. Live Births, Neonatal Deaths, and Fetal Deaths by Hospital Group Number and Per Cent, Oklahoma, 1956-1957

Hospitals and Annual Average No. Total Births	Live Births		Neonatal Deaths*		Fetal Deaths**		Total Births		Perinatal Deaths***	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Group I, 1,000 and over	32,691	31.8	621	32.9	342	24.9	33,033	31.7	963	29.5
Group II, 500-999	21,463	20.9	349	18.5	289	21.0	21,752	20.9	638	19.6
Group III, 100-499	36,773	35.8	649	34.4	525	38.2	37,298	35.8	1,174	36.0
Group IV, less than 100	6,507	6.3	125	6.6	106	7.7	6,613	6.3	231	7.1
Not in hospital	5,389	5.2	142	7.5	113	8.2	5,502	5.3	255	7.8
Total	102,823	100.0	1,886	99.9	1,375	100.0	104,198	100.0	3,261	100.0

*Under 28 days of age
**20 weeks or more gestation
***Neonatal deaths plus fetal deaths

31.7 per cent of total births; Group II hospitals, 20.9 per cent; Group IV hospitals, 6.3 per cent; and not in hospital, 5.3 per cent. The percentage distribution of perinatal deaths among hospital groups was similar and is shown in the same table along with distributions of component parts of the perinatal mortality rate formula.

Birth Weight

Of the total births, 7.7 per cent were immature by birth weight for the whole State. Figures for the United States for the same period of time are not yet available, but during the years 1952-1954, the corresponding proportion of immature infants among live births was 7.5 per cent.[4] In a study of perinatal mortality in Iowa covering the years 1953-1957, immature births amounted to 6.2 per cent of total births.[5]

In Oklahoma, the percentage of births that were immature was highest in the births occurring outside hospitals. This was found to be true also in the Iowa study and may be attributed to the inclusion in this group of many precipitate deliveries. Among hospital deliveries, the highest proportion of immatures was in Group I hospitals having the largest numbers of deliveries annually. The lowest was found to occur in hospitals in Group III having 100-499 deliveries annually. Detailed percentage distributions by birth weight for all groups may be seen in Table 2.

Table 2. Percentage Distribution of Total Births by Birth Weight for Hospital Groups, Oklahoma, 1956-1957

Birth Weight	State Total	Group I	Group II	Group III	Group IV	Not in Hospital
Under 2 lb. 4 oz.	0.7	0.8	0.8	0.5	0.5	0.9
2 lb. 4 oz. - 3 lb. 4 oz.	0.8	0.8	0.8	0.7	0.7	1.1
3 lb. 5 oz. - 4 lb. 6 oz.	1.5	1.6	1.4	1.4	1.4	1.8
4 lb. 7 oz. - 5 lb. 8 oz.	4.7	5.2	4.6	4.3	5.1	5.1
5 lb. 9 oz. - 6 lb. 9 oz.	17.1	18.2	17.7	16.2	16.4	14.0
6 lb. 10 oz. - 7 lb. 11 oz.	37.3	38.2	38.1	37.4	34.9	30.4
7 lb. 12 oz. - 8 lb. 13 oz.	28.1	26.7	27.9	28.9	30.1	28.7
8 lb. 14 oz. - 9 lb. 14 oz.	8.2	7.3	7.4	8.7	9.0	12.3
9 lb. 15 oz. - 11 lb. 0 oz.	1.5	1.1	1.1	1.6	1.7	5.0
11 lb. 1 oz. and over	0.2	0.1	0.1	0.2	0.3	0.8
Immature (5 lb. 8 oz. or less)	7.7	8.4	7.7	7.0	7.7	8.9

Table 3. Comparison of Perinatal Mortality Rates in Oklahoma and Iowa Studies

	Oklahoma 1956-1957 White Only	Iowa[5] 1953-1957
Crude rates	29.5	28.6
Adjusted rates*	28.2	26.9
Rates by birth weight:		
Under 2 lb. 4 oz.	905.1	922.6
2 lb. 4 oz. - 3 lb. 4 oz.	653.4	670.6
3 lb. 5 oz. - 4 lb. 6 oz.	293.6	284.2
4 lb. 7 oz. - 5 lb. 8 oz.	84.2	82.0
5 lb. 9 oz. - 6 lb. 9 oz.	20.9	20.9
6 lb. 10 oz. - 7 lb. 11 oz.	10.2	9.5
7 lb. 12 oz. - 8 lb. 13 oz.	9.4	6.4
8 lb. 14 oz. - 9 lb. 14 oz.	9.6	8.1
9 lb. 15 oz. and over	30.9	22.6

*Adjusted to birth weight distribution of total hospital births, Oklahoma, 1956-1957.

Mortality

The 1956-1957 perinatal mortality rate for the State was 31.3 deaths per 1,000 total births. There is no exactly comparable rate from another period of time which could be used to measure possible change, nor is a comparable national rate yet available. The corresponding rate from a study in Iowa, covering the years 1953-1957 was 28.6.[5] Because the non-white population constitutes less than one per cent of the total in Iowa, the most nearly comparable rates in Oklahoma would be those pertaining to the white population alone. Such a comparison is shown in Table 3, where Oklahoma's white perinatal mortality rate is shown to be 29.5. Weight adjusted rates still show more favorable mortality in Iowa. The effect of variables other than weight on this difference cannot be determined from available data.

Crude perinatal mortality rates of Oklahoma Group I and Group II hospitals were below the State rate, being 29.2 and 29.3, respectively, and those of the other groups were higher. The highest rate was found to be 46.3 among deliveries occurring outside hospitals. These rates are shown in Table 4.

The relationship between birth weight and mortality is apparent in Table 4. Highest rate of loss was in the infants weighing less than two pounds four ounces. As birth weight increased, the mortality rate decreased, reaching a low point, State-wide, in infants weighing seven pounds twelve ounces to eight pounds thirteen ounces. Further increases in birth weight were associated with increasing mortality rates. Weight specific mortality rates are shown also in Table 4 for each hospital group.

It was pointed out in the previous section that there was variation from one hospital

Table 4. Perinatal Mortality Rates for Hospital Groups Oklahoma, 1956-1957

	State Total	Group I	Group II	Group III	Group IV	Not in Hospital
Crude rates	31.3	29.2	29.3	31.5	34.9	46.3
Adjusted rates*	28.6	25.2	25.5	30.9	34.1	40.1
Rates by birth weight:**						
Under 2 lb. 4 oz.	886.4	893.7	923.5	887.2	*944.4*	*673.5*
2 lb. 4 oz. - 3 lb. 4 oz.	645.5	605.5	639.5	680.1	*711.1*	627.1
3 lb. 5 oz. - 4 lb. 6 oz.	287.3	269.3	229.3	311.8	391.3	340.0
4 lb. 7 oz. - 5 lb. 8 oz.	81.4	62.0	79.1	92.8	98.8	124.1
5 lb. 9 oz. - 6 lb. 9 oz.	21.5	18.4	17.1	23.6	25.0	45.6
6 lb. 10 oz. - 7 lb. 11 oz.	11.2	9.3	9.5	12.5	14.7	18.0
7 lb. 12 oz. - 8 lb. 13 oz.	9.7	8.8	7.6	10.0	10.0	20.9
8 lb. 14 oz. - 9 lb. 14 oz.	11.2	6.2	11.2	13.6	16.8	13.3
9 lb. 15 oz. - 11 lb. 0 oz.	22.7	5.3	29.8	29.0	35.7	21.8
11 lb. 1 oz. and over	117.4	*190.5*	*107.1*	122.0	*55.6*	*69.8*
Per cent Negro births	8.8	11.5	5.2	5.7	5.3	31.9

*Adjusted to birth weight distribution of total hospital births, Oklahoma, 1956-1957.
**Rates based on less than 50 total births are shown in *italics*.

group to another in proportional birth weight distribution of infants. The effect of this variation on crude rates has been eliminated statistically in the adjusted rates shown below the crude rates in Table 4. These adjusted rates are the perinatal mortality rates which would have prevailed if the groups had had exactly the same birth weight distributions. To this extent, they are comparable from one to the other, but they are not comparable with the crude rates. Differences in proportion of Negro births also affect both crude rates and weight adjusted rates. Although adjustment for race composition was not made for this comparison, the percentages of Negro births in each group are shown on the last line of the table as an aid to interpretation. These percentages are very nearly equal for Groups II, III, and IV, but the percentage was higher for Group I hospitals, 11.5 per cent, and highest in deliveries outside hospitals, 31.9 per cent. Since Negro perinatal mortality is higher than white perinatal mortality, greater proportions of Negro births would tend to increase the total perinatal mortality.

It appears that perinatal mortality experience was most favorable in the two hospital groups containing hospitals with more than 500 births annually. These hospitals would be expected to have the most complete and specialized facilities for maternal and newborn care. The weight adjusted rates for these groups of hospitals were nearly the same and both were below the State-wide rate. On the other hand, weight adjusted rates for the groups containing hospitals having less than 500 births annually were higher than the State-wide rate and that for hospitals having less than 100 births annually was the highest of all the hospital groups. These differences parallel those found in a study of neonatal mortality in hospitals of Upstate New York, covering the years 1950-1954.[6]

Group I Hospitals

Table 5 shows crude perinatal mortality rates, weight and race adjusted rates, and weight specific rates for the seven Group I hospitals individually. These hospitals are identified only by letters of the alphabet which were assigned in no particular order. As an aid toward caution in interpreting differences, rates by specific birth weight intervals have been shown in italics when the base for the rate was less than 50 total births.

Crude perinatal rates ranged from a low of 21.8 to a high of 44.1 with the remaining rates lying between 25.9 and 30.3. The range of crude rates in hospitals of the same size in Iowa was 20.4 to 40.8.[5] Adjusted rates are shown on the line below the crude rates. Rates for all hospitals were weight adjust-

Table 5. Perinatal Mortality Rates for Group I Hospitals (1,000 or More Births Annually) Oklahoma, 1956-1957

	Hosp. A	Hosp. B	Hosp. C	Hosp. D	Hosp. E	Hosp. F	Hosp. G
Crude rates	27.0	26.3	30.3	44.1	21.8	25.9	27.2
Adjusted rates*	23.6	24.8	24.7	42.0	22.2	25.2	22.7
Rates by birth weight:**							
Under 2 lb. 4 oz.	*750.0*	*866.7*	816.7	*828.6*	*1000.0*	*961.5*	975.6
2 lb. 4 oz. - 3 lb. 4 oz.	*733.3*	*500.0*	500.0	*805.6*	*714.3*	*600.0*	564.5
3 lb. 5 oz. - 4 lb. 6 oz.	*189.2*	*343.8*	269.8	352.3	*209.3*	271.6	233.9
4 lb. 7 oz. - 5 lb. 8 oz.	26.1	33.3	60.8	71.4	61.6	81.7	65.8
5 lb. 9 oz. - 6 lb. 9 oz.	19.5	10.6	19.4	30.5	17.9	12.4	15.8
6 lb. 10 oz. - 7 lb. 11 oz.	7.3	12.6	10.8	14.0	6.1	6.8	8.1
7 lb. 12 oz. - 8 lb. 13 oz.	14.3	9.1	8.3	17.3	3.4	12.3	4.8
8 lb. 14 oz. - 9 lb. 14 oz.	—	11.4	8.4	16.9	4.3	2.5	3.8
9 lb. 15 oz. and over	*62.5*	*43.5*	32.6	54.5	—	26.0	—

*Adjusted to birth weight distribution of total hospital births, Oklahoma, 1956-1957.
**Rates based on less than 50 total births are shown in *italics*.

ed and those for the four hospitals having five per cent or more Negro births were also adjusted for race. The adjusted rates for six of the hospitals were clustered between 22.2 and 25.2 and the differences among them were not statistically significant. However, the seventh hospital had an adjusted rate of 42.0, a difference from all the others large enough to be statistically significant.

In addition to these variables selected from those reported on birth and death certificates which are related to perinatal mortality, there are other important variables which would have to be considered in a careful evaluation of differential rates in hospitals. Procedures and practices associated with delivery and hospitalization are, of course, among these. Others are the duration and quality of prenatal care, general health, nutrition, housing, and all the socioeconomic factors affecting survival of the individual. Wells, Greenberg, and Donnelly, in a paper giving some preliminary results of the North Carolina Fetal and Neonatal Death Study, identified a number of these factors which were associated with significant differences in mortality.[7] Studies in England also point out that social class may be a very important variable.[8]

Group II Hospitals

Perinatal mortality rates for Group II hospitals individually are shown in Table 6. These hospitals are also identified only by

Table 6. Perinatal Mortality Rates for Group II Hospitals (500-999 Births Annually) Oklahoma, 1956-1957

	Hospitals							
	H	I	J	K	L	M	N	O
Crude rates	33.9	33.4	31.3	45.1	25.1	22.2	19.1	43.4
Adjusted rates*	28.8	31.6	25.1	33.9	26.7	18.0	19.0	30.2
Rates by birth weight:**								
Under 2 lb. 4 oz.	*916.7*	*1000.0*	*1000.0*	*882.4*	*1000.0*	*555.6*	*1000.0*	*888.9*
2 lb. 4 oz. - 3 lb. 4 oz.	*666.7*	*750.0*	*666.7*	*600.0*	*583.3*	*454.5*	*357.1*	*727.3*
3 lb. 5 oz. - 4 lb. 6 oz.	*206.9*	*315.8*	*178.6*	*333.3*	*173.9*	*176.5*	*181.8*	*187.5*
4 lb. 7 oz. - 5 lb. 8 oz.	117.6	146.7	45.4	50.8	26.7	76.9	63.5	131.3
5 lb. 9 oz. - 6 lb. 9 oz.	16.8	28.9	10.8	33.6	21.3	9.2	11.5	16.2
6 lb. 10 oz. - 7 lb. 11 oz.	11.9	7.9	10.9	14.2	14.2	7.0	7.4	8.3
7 lb. 12 oz. - 8 lb. 13 oz.	11.5	8.6	5.3	16.1	7.7	7.0	4.8	12.9
8 lb. 14 oz. - 9 lb. 14 oz.	10.1	—	37.6	13.2	29.0	—	—	18.3
9 lb. 15 oz. and over	—	—	*41.7*	*111.1*	*38.5*	—	—	*76.9*

	Hospitals						
	P	Q	R	S	T	U	V
Crude rates	16.5	28.6	30.6	30.2	24.3	32.0	19.7
Adjusted rates*	21.0	25.1	26.8	27.7	24.1	28.9	23.1
Rates by birth weight:**							
Under 2 lb. 4 oz.	*800.0*	*1000.0*	*916.7*	*944.4*	*888.9*	*1000.0*	*1000.0*
2 lb. 4 oz. - 3 lb. 4 oz.	*600.0*	*555.6*	*615.4*	*1000.0*	*714.3*	*750.0*	*750.0*
3 lb. 5 oz. - 4 lb. 6 oz.	*357.1*	*300.0*	*272.7*	*466.7*	*111.1*	*105.3*	*384.6*
4 lb. 7 oz. - 5 lb. 8 oz.	56.6	98.0	58.0	65.6	55.6	87.0	76.9
5 lb. 9 oz. - 6 lb. 9 oz.	4.5	10.5	25.1	14.4	26.2	17.2	6.0
6 lb. 10 oz. - 7 lb. 11 oz.	2.0	11.2	10.1	5.8	8.4	13.3	8.2
7 lb. 12 oz. - 8 lb. 13 oz.	5.6	—	7.1	4.9	7.4	12.8	—
8 lb. 14 oz. - 9 lb. 14 oz.	—	19.2	18.3	9.0	—	6.5	—
9 lb. 15 oz. and over	*153.8*	—	—	—	*69.0*	83.3	—

*Adjusted to birth weight distribution of total hospital births, Oklahoma, 1956-1957.
**Rates based on less than 50 total births are shown in *italics*.

letters of the alphabet assigned in no particular order. As in Table 5, rates shown in italics for specific birth weight intervals indicate that the base for the rate was less than 50 total births.

Crude rates ranged from a low of 16.5 to a high of 45.1. The comparable range from the Iowa study was 21.4 to 37.8.[5] Rates adjusted to eliminate differences due to birth weight distributions are shown on the line below the one showing crude rates in Table 6. Adjusted rates for hospitals of this size, like those for the largest hospitals, covered a smaller range from a low of 18.0 to a high of 33.9, with individual hospitals distributed fairly evenly through this range. As pointed out in the discussion of rates for Group I hospitals, proportions of Negro to white births, service patients to private patients, and other socio-economic variables contributed in unknown amounts to differences among hospitals.

Group III Hospitals

Still greater variation in crude perinatal rates from one hospital to another was found among the 82 Group III hospitals. Some amount of increased variation was to be expected because of the smaller numbers of births involved. Weight specific perinatal rates and weight adjusted rates were not computed for these hospitals having 100-499 births annually.

The range of crude rates for these hospitals was from a low of 9.4 perinatal deaths per 1,000 total births to a high of 56.4. From the Iowa study, the comparable range was 11.3 to 57.3.[5] The distribution of hospitals with respect to perinatal rates is shown in Table 7. Sixty of these hospitals, 73.2 per cent of the total, had rates which fell between 20 and 44, or roughly within the ranges of crude rates for the other two hospital groups already discussed. The rates for eleven hospitals were 45 or higher.

Group IV Hospitals

Perinatal mortality rates were not computed individually for hospitals having fewer than 100 births annually. However, data necessary to do so were tabulated and are available.

Table 7. Distribution of Perinatal Mortality Rates for Group III Hospitals (100-499 Births Annually) Oklahoma, 1956-1957

	Group III Hospitals	
Crude Perinatal Rate	Number	Per Cent
Less than 10	1	1.2
10 - 14	4	4.9
15 - 19	6	7.3
20 - 24	9	11.0
25 - 29	14	17.1
30 - 34	19	23.2
35 - 39	14	17.1
40 - 44	4	4.9
45 - 49	5	6.1
50 - 54	4	4.9
55 and over	2	2.4
Total	82	100.1

Summary

Information shown on birth, death, and fetal death certificates filed with the State Department of Health has been used to compile perinatal mortality rates for groups of hospitals according to size as determined by the annual average number of total births, and for individual hospitals having 100 or more births annually. For the larger hospitals, rates were computed for specific birth weight intervals, and rates adjusted for differences in weight and race distributions were computed where numbers were of sufficient size to justify these refinements.

Variations in rates have been pointed out and discussed although it was not possible from available data to explore many important variables which have an effect on perinatal mortality. Differences from hospital to hospital do exist. To learn the reasons for these differences will require special study, collecting and taking into account information on all important related factors.

On the basis of information in the present study, it appears that perinatal rates in the larger hospitals having more complete and

specialized facilities and services are more favorable than those in smaller hospitals.

Since deaths of infants up to 28 days of age have been included and assigned back to the hospital in which the delivery took place, this study affords some hospital staffs the first opportunity to learn something about total mortality in infants born in their hospitals even when death occurred after release from the hospital.

Conclusion

Perinatal mortality studies will only partly fill the need for more information concerning the failures of pregnancies to produce living infants free from physical or mental defects. Also of prime importance is the study of perinatal morbidity and all of its associated factors. It is hoped that the limited study of mortality just summarized will encourage detailed studies of perinatal mortality and morbidity on a local basis. It is equally as important to study factors associated with low perinatal rates as it is to study those associated with high perinatal rates, so that areas of differences may be identified and so that knowledge gained may be pooled for the benefit of all.

The identities of individual hospitals will remain confidential with the State Department of Health. However, officials may obtain data pertaining to their own hospitals upon request.

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BATH, *n.* A kind of mystic ceremony substituted for religious worship, with what spiritual efficacy has not been determined.

The man who taketh a steam bath
He loseth all the skin he hath,
And, for he's boiled a brilliant red,
Thinketh to cleanliness he's wed,
Forgetting that his lungs he's soiling
With dirty vapors of the boiling.
Richard Gwow

From the Devil's Dictionary by Ambrose Bierce
—Sagamore Press, Inc.

A Clinical Study of Hypothermic Perfusion

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Allen Greer, M.D. **Robert Redmond, M.D.**
John Donnell, M.D. **John Carey, M.D.**
Garman Kemmell **David Geigerman, M.D.**
Bill McCollough, M.D.**** **Carl Krieger, M.D.**

From the Cardiovascular Section at Mercy Hospital, Oklahoma City, Oklahoma. *Supported in part by a grant from the Oklahoma State Heart Association.*

PHYSIOLOGIC STUDIES pertaining to a patient who underwent hypothermic perfusion will be presented and pertinent features discussed (Figures 1-10).

Technique: The perfusion apparatus was a DeWall Heart-Lung Machine[1] modified for rapid cooling and warming of blood. Heat exchange was accomplished by two devices, a stainless steel spiral*‡ which was inserted in the mayon helix and stainless steel tubing**‡ placed in the venous reservoir.[2] Electroencephalogram, electrocardiogram (lead 111), arterial blood pressure, and peripheral oxygen saturation were continuously traced with the Electronics for Medicine Research Recorder. The mid-esophageal temperature was monitored with a Tele-Thermometer.

Clinical Data

A 32 year old white man with an interatrial septal defect and pulmonary hypertension (Table 1), was subjected to hypothermic perfusion at a flow rate of 20ccs/Kg. of body weight on May 29, 1959. Hypothermia was accomplished by external cooling during the preparatory phase*** and internal cooling during the perfusion. At 30° C, the aorta was clamped distal to the coronary ostia for fifteen minutes during the repair of the interatrial defect under direct vision. At 27.5° C, internal and external warming were begun. The patient responded promptly from his anesthetic and the postoperative course was uneventful except for a short period of auricular fibrillation on the third postoperative day.

	Oxygen saturation Percentage	Pressure (mm Hg.)
Inferior vena cava	64	—
Superior vena cava	60	—
Right atrium	76	13/8
Right ventricle	77	65/3
Pulmonary artery	76	55/35
Pulmonary artery (wedge)	99	14/10

Table 1. Right heart catheterization data

*Suggested by Lamya Zuhdi.
**Suggested by Garman Kimmell.
***That external cooling phase is no more used, at present.
‡Designed and fabricated by Kimray, Inc.
****Fellow in Cardiovascular Research.

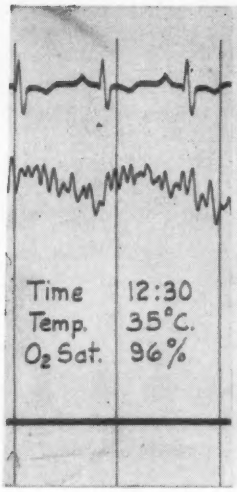

FIGURE 1

Figure 1. Both ECG and EEG at 35° C were similar to those seen prior to hypothermia.

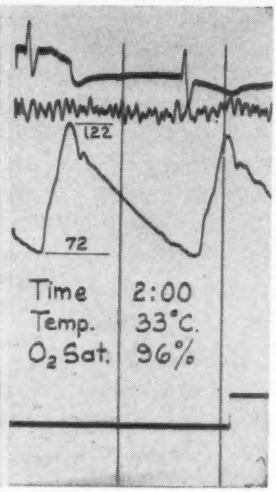

FIGURE 2

Figure 2. There was slowing of the heart at 33° C. Repolarization was delayed and atrial voltage decreased. The left internal mammary artery pressure was 122/72 mm Hg. and peripheral oxygen saturation 96%. The EEG was not markedly altered.

Discussion

One of the major problems in hypothermia is the occurrence of fibrillation at a temperature at which tissue oxygen demand is still high. If oxygenated blood is supplied to the body, ventricular fibrillation loses its deadly significance. Gollan[3,5] and Brown and his associates[4] have shown the safety of combining hypothermia and total body perfusion. Brown used a mixture of cardioplegic drugs to arrest the heart and Gollan has demonstrated the feasibility of only clamping the aorta, distal to the coronary ostia. We have obtained consistent survival after 30 minutes of aortic occlusion and right ventriculotomy at 20° C in dogs subjected to hypothermic perfusion.[6] At still lower temperatures the perfusion was successfully stopped for 45 minutes.

The ventricles continued to beat and the ECG promptly reverted to its preoperative characteristics, despite fifteen minutes of aortic occlusion between 27.5° and 31° C in this patient. The arterial blood pressure, the peripheral oxygen saturation, and the

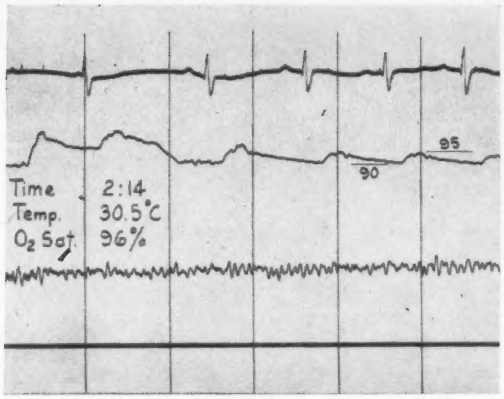

FIGURE 3

Figure 3. Two minutes after perfusion and internal cooling, at 30.5° C, and synchronous with the occlusion of the vena cavae, there occurred a primary T wave change toward the isoelectric line. The pulse pressure decreased rapidly and cardiac rate increased when the venae cavae were occluded. The peripheral oxygen saturation remained at 96%. The EEG was essentially unchanged.

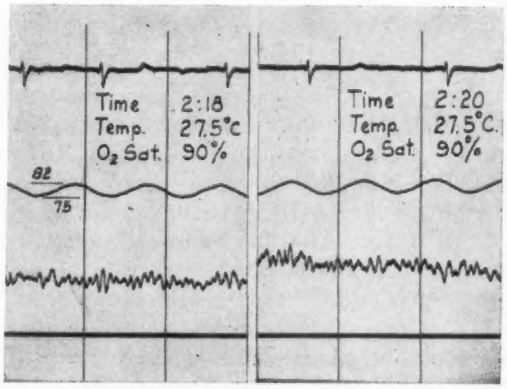

FIGURE 4 FIGURE 5

Figure 4. The major effect on the ECG was a decrease in voltage with a positive late T wave deflection, at 27.5° C and four minutes after clamping the aorta. There were multifocal P waves with A-V dissociation. The internal mammary artery pressure under total body perfusion was 82/75 and showed the sinusoidal wave of the sigmamotor pump. The peripheral oxygen saturation was 90%. The EEG remained essentially unchanged.

Figure 5. Six minutes after clamping the aorta and eight minutes after the beginning of internal cooling, the ECG continued to show low voltage and a late positive T wave. Repolarization had become progressively prolonged. Bradycardia was more evident. The other variables remained essentially unchanged. The same picture persisted throughout the period of aortic occlusion.

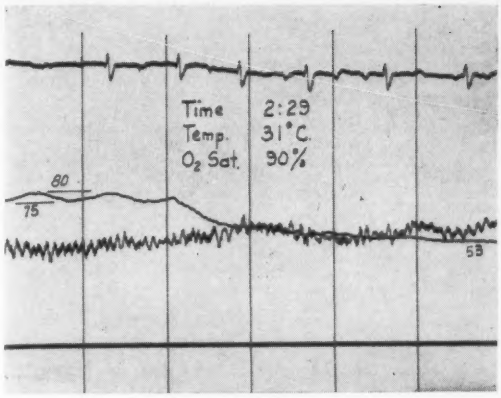

FIGURE 6

Figure 6. The aortic clamp was removed after fifteen minutes of occlusion. The cardiac rate increased almost immediately. The conduction pattern was variable. The P waves became more recognizable and inverted and A-V dissociation continued. The blood pressure dropped from 80/75 to 53 mm Hg. with almost no pulse pressure. Possibly this effect resulted from the dilatation of heart chambers and coronary vessels acting as a tidal basin. The other variables were not significantly altered.

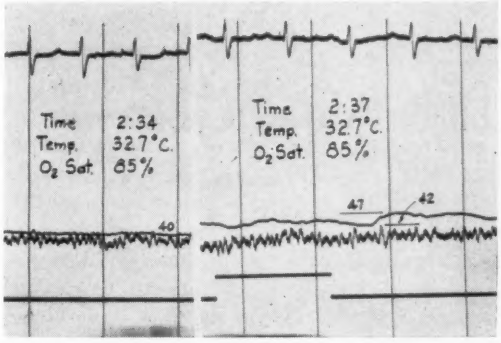

FIGURE 7 FIGURE 8

Figure 7. Five minutes after unclamping the aorta (with the venae cavae still clamped) the cardiac rate increased and the QRS complexes increased in voltage. There was essentially no pulse pressure. The peripheral oxygen saturation was 85%. The EEG was unchanged.

Figure 8. The superior vena cava was opened seven minutes following unclamping of the aorta. The ECG was essentially unchanged. The arterial pulse wave reappeared with a blood pressure of 47/42. The peripheral oxygenation and EEG were not altered.

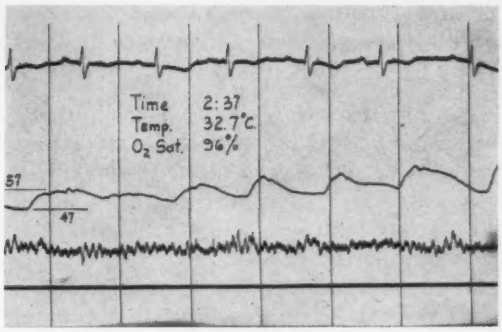

FIGURE 9

Figure 9. A few seconds after figure 8 was recorded the inferior vena cava was unclamped. The blood pressure increased within a few seconds from 57/47 to 85/58. Oxygenation rapidly returned to 96%.

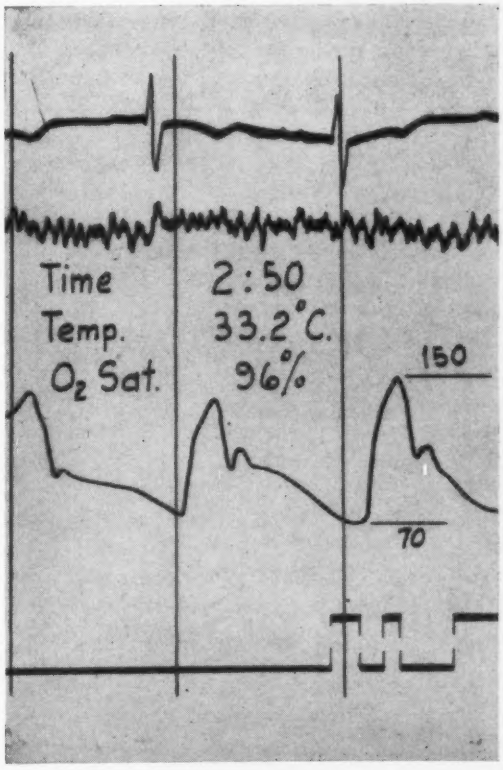

FIGURE 10

Figure 10. The ECG, EEG, and peripheral oxygenation were not markedly changed. The blood pressure was recorded at reduced sensitivity and was 150/70. Other than a return of the ECG to the preoperative contour, there were no significant changes during the warming period.

cerebral function as manifested by EEG records were adequate throughout the procedure.

The devices used for rapid cooling and warming of blood are of such a nature that the priming volume required in a DeWall oxygenator is lowered without altering its basic safety features. The low flow and the prolonged aortic occlusion help decrease the total amount of blood and simplify open heart surgery. The preoperative, operative, and postoperative amount of blood used including priming of the machine in this 75 Kg. patient was 8 pints.

Summary

The clinical and physiological data of a 30 year old man who underwent hypothermic perfusion are presented and the pertinent features discussed.

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Thanks are due for their unselfish help to Sister Mary Alvera, Modine Pierce and Ann Boden.

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TWENTY-NINTH

Annual Fall Conference

OKLAHOMA CITY CLINICAL SOCIETY

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OCTOBER 26, 27, 28, 1959

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Sam H. Sanders, M.D.
John H. Talbott, M.D.
Gershom J. Thompson, M.D.
Rupert B. Turnbull, M.D.
J. Walter Wilson, M.D.

Message from the Dean

The University of Oklahoma Medical Center, as an institution dedicated to serving the physicians and people of the state of Oklahoma, has many responsibilities. Its primary purpose is to provide an opportunity for the young people of Oklahoma to prepare for professoinal careers in medicine and the allied health sciences, which include nursing, dietetics, social service, physical therapy, medical and x-ray technology and cyto-technology. Such regularly scheduled courses do not represent all of the avenues of learning offered by the University Medical Center. Advances in the medical sciences have made it desirable to have special training and research programs to stimulate the use of modern techniques in medical practice and scientific research. The Medical Center has a responsibility to translate recent discoveries into practical use by physicians and scientists for the betterment of the people of Oklahoma.

Development of special training programs for such purposes has required support by grants from voluntary health agencies, foundations, the National Institutes of Health and industry. In 1947 the nationally available medical research funds totaled $15 million each from philanthropic agencies and the federal government. Industry contributed $35 million. A decade later the total from all these sources had increased nearly five times. By utilizing funds of this nature, medical teaching centers have been able to develop a variety of special training programs without additional financing by teaching institutions.

The clinical departments of our Medical School have established special training programs for physicians interested in continuing their education and becoming better qualified in a specific area. Included are opportunities for physicians to receive extended training in cardiology, gastro-enterology, diabetes, pathology, oncology, cardiac surgery, pediatric neurology, clinical preventive medicine and psychiatry.

Fellowships and training grants have permitted more medical students to engage in research and to test their aptitude in this field. Also, promising young scientists have found it possible to continue their careers in our state.

Through one of these programs it has been possible to extend the facilities and resources of the Medical Center to the colleges of the state. The Department of Physiology conducted this summer a one-month training course, with emphasis on the cardiovascular system, for college teachers of science. This concentrated period of study was well received by the teachers who are responsible for the quality of instruction provided to college students, some of whom will become the physicians and scientists of tomorrow. The department will further assist science instructors by visiting the various campuses and using a specially fitted station wagon for experiments and demonstrations of techniques in physiology.

Another unique special training project, in the field of biostatistics, has been established by the Department of Preventive Medicine and Public Health. Supported by the National Institutes of Health, the program has attracted the attention of students interested in enlarging their research capabilities in fields such as medicine, dentistry, psychology, parasitology and the basic medical sciences.

New activities of this type at the Medical Center have done much to create special opportunities for young scientists and physicians; and they have also enhanced the resources of the Medical Center in promoting the best in medical care for the people of the state of Oklahoma.

Mark R. Everett

Sarcoidosis with Joint Involvement

JAMES O. MORSE, M.D.

James O. Morse, M.D., graduated from the University of Oklahoma School of Medicine in 1953. He returned to the University Hospitals in 1956 to take a residency. Doctor Morse is now a medical missionary abroad.

ALTHOUGH bone involvement and arthralgia are relatively common in sarcoidosis, cases with histological evidence of joint involvement have been rare. A recent review of joint manifestations in sarcoidosis[1] mentions only the case of Burman and Mayer[2] in which biopsy of the synovial membrane in each knee and elbow had revealed sarcoid tissue in all of these joints. Faulkner[3] reported the case of a 49-year-old woman in whom a pedunculated tumor attached to the synovial membrane of the left knee was removed. The microscopic description suggests that the tumor was probably sarcoid.

We have recently had the opportunity to study a case with sarcoid changes in the left wrist joint, proved by biopsy.

Case Report

A 34 year old white man was admitted to the Veterans Administration Hospital, Oklahoma City, for the first time on February 25, 1957, complaining of recurrent soreness and stiffness in the left wrist for four years. He stated he had fallen on the left hand, twisting the left knee and ankle, while in Basic Training in 1944. Painful swelling of the left wrist, knee, and ankle ensued but gradually subsided over the following two months. Not until 1953 did he again notice occasional stiffness, soreness, and "popping" sensations in the left wrist.

In April 1954, he lost his balance while unloading a truck and jumped from it holding a 100-pound package of nails. He immediately experienced severe lowback pain radiating down the posterior aspect of the left lower extremity, but complete relief followed a period of bedrest and traction. The episodes of left wrist pain gradually became more severe, and at times swelling, warmth, and redness were noted as well. In early 1955 he had transient swelling of the left knee. He was treated for a fracture of the right wrist in March 1955 with no subsequent difficulty from this joint.

By September 1956 the pain and swelling in the left wrist had become constant, and by November 1956 had progressed to the point the patient was unable to grasp firmly and was forced to discontinue work as a roof repairman. On February 10, 1957, the exacerbation of pain began which prompted his admission. He stated that he had frequent episodes of headache associated with "colds," and recalled a sore throat at the time the pain worsened.

Physical examination revealed a moderately obese, large-framed man, weighing 259 pounds. The temperature was 99.6°, pulse rate 84, respiratory rate 20, and blood pressure 150 mm. Hg. systolic and 90 diastolic. There was no lymphadenopathy, splenomegaly or hepatomegaly. There was a firm swelling of the left wrist and hand. The wrist was also warm, slightly red, and quite tender to palpatation and movement. The left ankle was slightly swollen, but not red or tender.

The hemoglobin was 16.0 gm. per 100 ml., the white blood cell count 7,100 per cmm. with 63% neutrophils, 28% lymphocytes, and 9% monocytes. The urinalysis was negative. Serological test for syphilis was negative. Serum uric acid was 6.0, 5.0, 2.8, and 4.6 mg. per 100 ml. on repeated determinations. Serum albumin was 3.8 gm. per 100 ml. and globulin 3.7 gm. per 100 ml. Serum electrophoresis showed albumin 48.7%, alpha$_1$ globulin 7.6%, alpha$_2$ globulin 12.9%, beta globulin 14.3%, and gamma globulin 16.4%. The antistreptolysin O titer was 166 units. A lupus erythematosis preparation was negative. The tuberculin skin test was positive and histoplasmin and coccidiodin skin tests were negative. Other laboratory studies of note were brucella agglutination 1:20, serum calcium 5.2 meg/l, serum phosphorus 4.6 mg./100 ml. and alkaline phosphatase 4.5 B.U. Urine Sulkowich was negative. X-ray films of the chest, lumbar spine, ankles, knees, and right wrist on admission were interpreted as being within normal limits. The left wrist (Fig. 1) showed narrowing of the radial-carpal and carpal-metacarpal joints with irregular demineralization of the carpal bones and what appeared to be lytic areas in the triquetrum. There were similar smaller areas in the other carpal bones and the styloid process of the ulna. There was considerable swelling of the soft tissues. Sinus x-rays showed clouding of both maxillary sinuses, more marked on the right, with thickening of the mucoperiosteum.

The initial impression was rheumatoid arthritis and when aspirin gave no relief, phenylbutazone in doses of 300 mg. daily was tried. Since there was only slight and

Figure 1. X-ray of left wrist showing narrowing of joint spaces and demineralization.

transient improvement with this drug, it was discontinued and aspirin reinstituted. Paraffin dips and massage to the wrist were begun, but seemed to increase the pain. Pain and swelling decreased somewhat following immobilization of the wrist in a plaster splint. Repeat x-ray films in four weeks were interpreted as showing no significant change, but those made after eight weeks (Fig. 2) showed marked deminerali-

Figure 2. X-ray taken eight weeks after that in Figure 1 showing greater degree of demineralization and loss of normal trabecular structure.

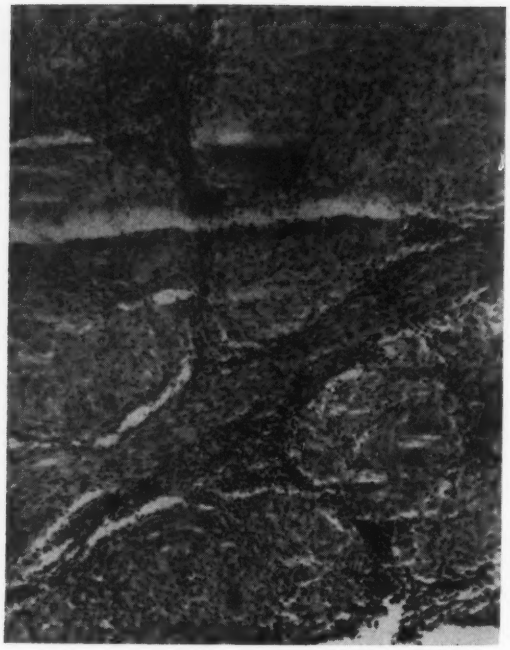

Figure 3. Microscopic section of synovial membrane from left wrist showing the closely packed granulomatous lesions with interspersed lymphocytes. x 180

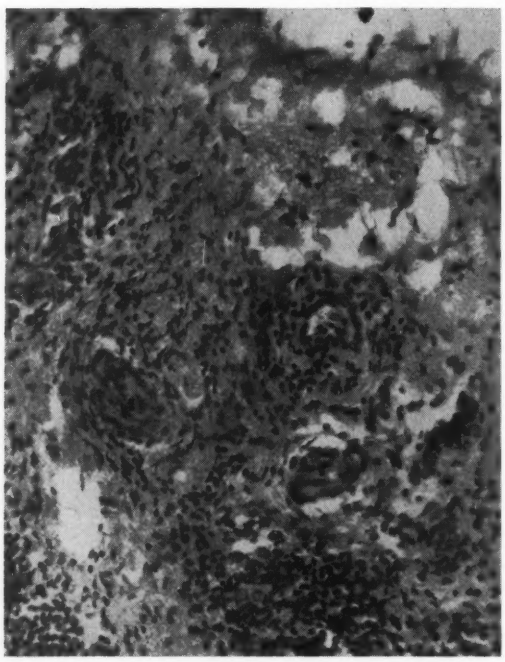

Figure 4. Higher power view of similar area as Figure 3 showing giant cells. x 360

zation and loss of normal trabecular structure. The radiocarpal joint appeared narrowed and the articular surface of the radius irregularly destroyed. There was marked swelling of the soft tissues of the palm and wrist with a simulated "silver-fork" deformity.

In view of these progressive x-ray changes and the persistent pain and swelling, the left wrist was explored surgically. The joint surfaces appeared edematous and somewhat discolored. Several pieces of the synovial lining of the articulating surfaces of the triquetrum and pisiform were excised and a fragment removed from the triquetrum. Histological study of the synovium (Figs. 3 and 4) revealed very numerous, discrete, closely packed, granulomatous lesions composed of epithelioid cells and an occasional Langhan's type giant cell. No caseation necrosis, asteroids, or Schaumann bodies were seen. Separating the granulomatous lesions were moderate numbers of lymphocytes. No acid-fast bacilli were seen on specimens appropriately stained. The sections of bone and fatty marrow revealed similar granulomatous lesions in one fragment. There was fibrosis of some of the adjacent marrow spaces. It was the pathologist's impression that this probably represented Boeck's sarcoid. Cultures of swabs of the joint spaces as well as fragments of the synovia itself grew no organisms, including those on media for acid-fast organisms.

A needle liver biopsy was performed, yielding a specimen which showed a granuloma with giant cells (Fig. 5).

Prednisone, sodium para-aminosalicylate, and isoniazid were begun, and the pain and joint swelling diminished rapidly. However, improvement was only temporary, and the patient began to complain also of constant aching in the cervical region, left hip and left knee, although there were no physical or x-ray changes in these joints. The original 40 mg/day dose of prednisone was continued for three weeks, then gradually decreased and discontinued completely after six weeks.

He continued to wear the wrist brace but suffered a fracture of the right fibula on

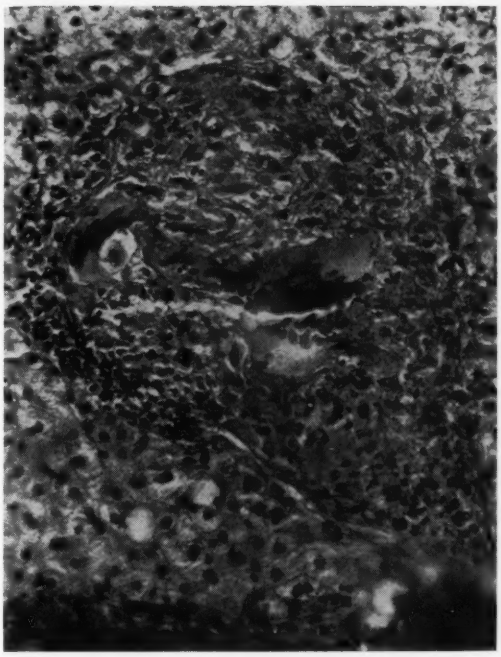

Figure 5. Microscopic section of liver (H and E Stain) showing granuloma. x 360

October 13 and was readmitted at that time for open reduction. When seen last January 28, 1958, he still complained of pain in the left wrist which still appeared swollen, warm and tender. He stated that he was continuing to take the isoniazid and para-aminosalicylic acid as recommended.

Comment

Although arthralgia is a common complaint in sarcoidosis,[4] there are usually no objective joint findings. Apparently, this patient experienced similar pains in the left knee and left elbow at times.

Cases of sarcoidosis displaying a migratory polyarthritis with hot, painful, swollen joints simulating rheumatic fever have been reported by several authors in recent years.[1,6,7,8] X-ray changes are usually limited to minimal roughening of articular surfaces or cystic changes in adjacent bone, but most cases showed no x-ray abnormalities in the joints and only minimal residual deformities were encountered.

Castellanos[9] reported the case of a 6-year-old boy with extreme swelling of ankles, knees, wrists, elbows, and shoulders for three years and with histologic evidence of sarcoidosis from a lymph node and from bone marrow aspiration. The synovial membrane in the left knee was biopsied but only chronic, non-specific inflammatory changes were seen. Although the tuberculin reaction converted to positive 18 months later, and the child developed first a pleural effusion then a cold paraspinal abscess and eventually expired with tuberculous meningitis, it seems likely that this case represented at first sarcoidosis with rheumatic manifestations but without actual joint involvement by the granulomatous process.

Turek[10] reported as a rarity the case of a 52 year old man with persistent pain and swelling in the left ankle following a minor injury. X-rays eventually showed a spotty atrophy of all the bones about the ankle. At operation, changes of sarcoid were found at the border of adjacent cartilage but the joint capsule was not involved. This instance is similar to the two cases cited by Moyer[11] in which arthritic findings were apparently due to involvement of adjacent bone only.

The present case with sarcoidosis visibly confined to a single joint and manifested by hot, painful swelling, would seem unique. Such lack of joint involvement has even been listed as a differential radiological diagnostic joint.[12] That this patient's disease was actually generalized, however, is attested to by the finding of a granulomatous process in the liver.

Why sarcoidosis, which has been found to involve practically every tissue of the human body,[13] should so tenaciously avoid the joints is not clear unless the avascular nature of synovium protects it from the etiologic agent. When joint involvement does occur in sarcoidosis, it probably represents, as in tuberculosis, extension from adjacent bone in whose marrow the etiologic agent was originally seeded. That the bone marrow, in a carpal bone in this case, also showed sarcoidosis would suggest this. Indeed, the low invasiveness of sarcoid would seem to be all that prevents the relative incidence of joint sarcoid from approaching that of tuberculosis. That this present case is not merely tuberculous arthritis is attested to not only by the pathological character-

istics of the excised synovium and of the liver biopsy, but also by the results of thorough cultures and the lack of response to prolonged antituberculous therapy.

Summary

A case of sarcoid involving the left wrist and the liver is presented. Possible reasons for the rarity of joint sarcoid are discussed.

Acknowledgment

The author wishes to thank Doctors James F. Hammarsten, S. M. Glasser, and C. D. Toole for their advice and encouragement in the preparation of this paper.

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Magnification, as stated above, was reduced by three-quarters for publication in *The Journal*.

UNIVERSITY REGENTS approved the following appointments of chairmen of basic science departments for July 1 through June 30, 1961: Anatomy, Doctor Ernest Lachman; microbiology,, Doctor Vernon Scott (temporary); biochemistry, Doctor Mark R. Everett and Doctor Arley T. Bever, vice-chairman; pathology, Doctor William E. Jaques; pharmacology, Doctor Paul W. Smith and Doctor Harold A. Shoemaker, vice-chairman; physiology, Doctor A. N. Taylor and Doctor James W. H. Smith, vice-chairman; preventive medicine and public health, Doctor Kirk T. Mosley and Doctor W. W. Schottstaedt, vice-chairman.

JUNIOR LEAGUE of Oklahoma City has given University hospitals $2,400 to pay for installation of ultraviolet lights in all nurseries and other critical areas as a means of preventing airborne spread of staphlococcus. Installation has been completed in most units.

Medical Grand Rounds

Torula Meningitis Treated with Amphotericin B*

Edited by Jack D. Welsh, M.D., discussion by D. W. Foerster, M.D.,*** Walter A. Camp, M.D.**** and Captain Everett R. Rhoades, USAF (MC)*****

D. W. Foerster, M.D.: The patient is a 54-year-old white farmer who was admitted to the Oklahoma University Hospitals in a semiconscious condition and the history was obtained from the members of his family.

Present illness: The patient had been in good health until eight months prior to admission when he had what was described as a "heat stroke." Little information is available concerning this episode other than that he developed a generalized headache which recurred with increased intensity and frequency following a tooth extraction about one month prior to admission. These headaches became daily in occurrence and salicylates gave only minimal relief. During this same time he developed increasingly severe episodes of nausea and vomiting. He was noted to be lethargic and hostile and to have difficulty with his gait. He became bedfast and was unresponsive the day before admission. The patient had lost 20 pounds in weight during this illness.

The only other historical fact of note was progressive deafness which followed an old perforation of the right ear drum.

Physical examination: B. P. 120/80, T. 99.2° F., R. 20/min., pulse 76/min. The patient was a well-developed white man who was stuporous, combative, and dehydrated. He held his lids tightly closed and his legs rigid. The right tympanic membrane had an old, healed perforation. There was early bilateral papilledema without hemorrhage or exudate. Examination of the heart, lungs, abdomen, and extremities was not remarkable. There were no palpable lymph nodes. Nuchal rigidity was present. The patient moved all of his extremities, but there was moderate bilateral hypertonicity. Deep tendon reflexes were hypoactive in the upper

*The contents reflect the personal views of the Air Force author and are not to be construed as a statement of official Air Force policy.

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extremities and absent in the lower. The Babinski reflex was positive bilaterally but no other abnormal reflexes were elicited.

Hospital course: The essential laboratory data and the patient's therapy are given in Table I. In addition, on admission, the urinalysis was normal as were the total serum protein, blood sugar, and bilirubin. A lumbar puncture showed an opening pressure of 300 mm. and a closing pressure of 150 mm.; the protein was 155 mg.%. The stained smear of the fluid showed 40 lymphocytes per cu. mm. as well as encapsulated, yeast-like organisms. Organisms characteristic of Cryptococcus neoformans were demonstrated using an India ink preparation. X-ray films of the chest and skull were normal. An electroencephalogram showed one to four per second moderate voltage slow wave activity throughout.

The patient's dehydration was corrected with intravenous fluids and he was maintained on a 2,000 calorie tube feeding mixture. On the second hospital day intravenour administration of amphotericin B was instituted because of the diagnosis of Torula meningitis. After receiving only 12 mgs. of this medication, he had a severe chill and a temperature elevation of 102° F. Accordingly, sodium salicylate in 600 mgm. amounts was given rectally at 3-4 hour intervals and Chlor-trimeton in 10 mg. amounts was added to his intravenous fluids. The amphotericin B was gradually increased as shown in Table I. By the second week, the patient's BUN was 33 mg.%, and his hematocrit had decreased to 40%. He remained stuporous and occasionally talked incoherently. A Torula preparation, performed during the third week, was negative. At this point the patient recognized his family and started asking for food. His hematocrit continued to decrease however, and a lumbar puncture during the sixth week of hospitalization still showed an elevation of the protein and 16 lymphocytes. His memory was decreased and he occasionally manifested confusion. Nevertheless, the patient was able to walk at this time.

Walter A. Camp, M.D.: Cryptococcus is the most common cause of mycotic meningitis in man. Busse[1] and Buschke[2] as early as 1895 described gumma-like lesions of the leg in a 31-year-old female. Autopsy showed involvement of the lungs, spleen, kidney, and bone by cryptococcosis. Since that time,

TABLE I
Course

Week	1	2	3	4	5	6	13*	17**	21**
WBC per mm³	9,000	8,850	—	7,500	—	7,100	5,800	4,950	—
Hct. %	43	40	35	31	32	29	30	34	—
BUN, mg.%	19	33	27	23	28	18	15	—	13
C.S.F. Open pres. mm. of fluid	300	—	195	—	100	210	180	—	—
Close pres. mm. of fluid	150	—	145	—	84	136	130	—	—
Cells/mm³	40 L.		15 L.		9 L.	16 L.	0	29 L.	10 L.
Prot., mg.%	155	—	72	—	80	80	59	72	65
Sugar, mg.%	30	—	27	—	61	46	56	—	—
Spinal Fluid Culture	Pos.	—	Neg.	—	Neg.	Neg.	Neg.	—	—
Amphotericin B, mg./week (intravenous)	237	340	260	195	260	195	2,452 Total Treatment		

*Last week of Hospitalization
**Clinic visits

the literature has contained an ever increasing number of case reports. Approximately one-third of the patients have had some preexisting chronic illness, mainly of the lymphoma-leukemia group.

Pulmonary infections with cryptococcus are probably quite prevalent but they are infrequently diagnosed because of the lack of clinical symptoms. Usually there is a cough with scanty sputum and a low grade fever; while dyspnea, hemoptysis, pleuritic pain, and weight loss are infrequent. Many think that the respiratory tract is the portal of entry for the systemic disease although symptoms have been first noted after such procedures as dental extractions. Physical findings may indicate a small area of consolidation or bronchitis. Rarely, there is an associated effusion. X-ray findings are varied and may simulate any pulmonary infection. In cryptococcosis the pulmonary disease is typically located in the lower one-half of the lung fields, shows rare cavitation, lack of evidence of fibrosis and calcification, inconspicuous hilar adenopathy, infrequent massive collapse of involved lobes, and the rare occurrence of coin lesions.[3] This distinction has proved to be helpful in the radiological diagnosis of the disease.

Cryptococcus neoformans has a particular predilection for the central nervous system and it is this involvement which our patient illustrates. In a large series of patients with torulosis of the central nervous system reviewed by Mosburg and Arnold,[4] 122 patients were males and 50 females. The age ranged from 19 days to 60 years. It is interesting that the ante mortem diagnosis in most of the reported cases has been made by the use of spinal fluid cultures, rather than by India Ink preparations. The histologic findings may range from a few small isolated lesions in the superficial areas of the cortex to a diffuse involvement of all the areas of the brain; and, rarely, localized granulomatous lesions can be demonstrated. The most common presenting picture in central nervous system cryptococcosis is that of meningitis. In light of the varied pathological picture, it is understandable that this infection may be confused with a brain tumor, subarachnoid hemorrhage, brain abscess, encephalitis, or even subdural hematoma. Although there is no classical prototype of this disease, most authors[3] describe a mild, bilateral, frontal headache which is the initial complaint. During the following week or months, these headaches increase in severity and frequency and are unrelieved by analgesics. As the headaches increase, vertigo, faintness, and vomiting may occur. Ataxia has also been frequently reported. With progression of the disease, the patient becomes lethargic, keeps his eyes closed, groans, and resists all efforts to be examined. Anorexia and weight loss are fairly common. The history of a remission some time during the early phase of the illness is common enough to be considered a part of this clinical picture. Irritability, restlessness, forgetfulness, apathy, and confusion may suggest the possibility of some emotional disorder in elderly patients and they have often received psychiatric therapy in the earlier phases of the illness. It is interesting that Doctor John Coates of the Neurosurgery Department made a clinical diagnosis of Torula meningitis on our patient when he first saw him in the emergency room.

On examination, the patient is usually afebrile. There are signs of meningismus with nuchal rigidity and positive Kernig and Brudzinski signs. Papilledema is very common, whereas diplopia and nystagmus are less frequent. Photophobia and optic atrophy are rare.

The hemogram is usually normal, although a slight leukocytosis is not uncommon. The spinal fluid pressure is moderately increased and the fluid may be opalescent or xanthochromic. The protein is usually elevated in the range of 100 mg.%. The cell count reveals predominantly lymphocytes in the range of 40 to 100 cells per cu. mm., while the spinal fluid sugar is generally not remarkable. An India ink preparation for Torula on the spinal fluid, contrary to common belief, is usually negative on the first examination. However, the organisms are usually easily recovered if the spinal fluid is placed on Sabouraud's medium. The diagnosis will be most frequently made if cryptococcosis is suspected and proper cul-

TABLE 2

	Geographic Location	Mode of Infection	Man to Man	Probable Entry	Race Susceptability	Major Site(s) in Body	Histology	Culture	Skin test	Serology test
Blastomycosis	Eastern N. America	?	No	Skin? Lungs	None	Skin Lungs Dissem.	Budding Yeast	SAB—20° Mycelial Blood—37° Yeast	Not as constant as others. Cross reacts with Histo	Cross Rx. with Histo. Complement Fixation
Histoplasmosis	North and South America Ohio Valley	Spores from soil	No	Lungs	None	Lungs, Lymphatics, Disseminated	Intracellular or budding yeast	SAB—20° Mycelial Blood—37° Yeast	Positive after 3 or 4 weeks	Complement Fixation Yeast and Mycelial phase
Coccidioidomycosis	South and Central America and S.W. U.S.A.	Arthrospores from soil	No	Lungs	Negroes Filipinos	Lungs, Disseminated	Spherule with Endospores	Always Mycelial	Positive in first week	Complement Fixation
Cryptococcosus	Worldwide	?	No	Lungs? Oral?	?	Lungs? CNS	Encapsulated yeast	Always yeast	No	No

Predominant characteristics and differences between the four deep mycotic infections of man in the United States.

tures are taken in any patient in whom one finds unexplained cerebral spinal fluid pleocytosis.

The duration of this illness is also quite varied, particularly since the advent of effective therapy. Prior to the use of amphotericin B, the duration of the illness ranged most commonly between one and six months although it was uncommon to find patients living for several years, organisms being recovered from the spinal fluid throughout the total illness. Neurosurgical intervention has been noted in reported series in as high an incidence as 20%. Cryptococcal meningitis is frequently confused with frontal lobe tumors because of the personality change, the slow progression of symptoms, and the late development of papilledema. Again, in the presence of papilledema, many people are reluctant to do a spinal tap, and the correct diagnosis is not made until the time of surgical exploration. It is of particular importance to note that fluid obtained from the ventricles may not contain the organisms even when the spinal fluid has large numbers of organisms.[5]

The development of neurological signs in patients with a lymphoma or leukemia should arouse suspicion of cryptococcosis. Zimmerman and Rappaport reported 30% of their cases occurred in association with Hodgkins disease.[6] Some authors have even suggested that the fungus, or one of its products may be one etiological agent of Hodgkins.[7] It has also been noted that an increased incidence of cryptococcosis has been noted in sarcoidosis.

E. Rhoades, M.D.: I should like to consider four of the so-called deep mycotic infections of man in the United States: coccidioidomycosis, histoplasmosis, blastomycosis and cryptococcosis. Some of the predominant characteristics and differences between the four organisms are summarized in Table II. North American Blastomycosis is apparently limited to the North American continent, the chief areas being in the southeastern United States, although cases have been reported from Canada and New England. Histoplasmosis is associated with a damp environment, and the greatest areas of involvement are along the Ohio and Mississippi River Valleys. Coccidioidomycosis has been shown to have its greatest area of endemicity in the southwestern United States, particularly near Phoenix, Arizona; El Paso, Texas; and the well-known San Joaquin Valley, California. Cryptococcosis has been shown to occur in all the continents. North America and Australia seem to be the

chief areas of involvement. Because of its early description in Europe, it sometimes is called European blastomycosis.

It has been well documented that the origin of coccidioidomycosis and histoplasmosis is intimately concerned with soil conditions, the former occurring in dry, dusty soil and the latter in moist, rich soil. The source of blastomycosis in nature is not well understood. It has been linked to decaying wood, but there are aspects of the disease which are not completely explained on this basis. Cryptococcosis has been found in soil, in ripening peaches, and more recently has been shown to have a high degree of association with pigeon excreta. The respiratory tract seems to be clearly established as the portal of entry in histoplasmosis and coccidioidomycosis. The portal of entry for blastomycosis is not well established, although the lungs and the skin are probably portals of entry. It is assumed, but not proven, that the primary entrance of Cryptococcus into the body is by way of the lungs. Some workers feel that if a careful enough search is made, a small area of involvement in the lung can usually be found at autopsy. Since cryptococcosis characteristically leaves very little residua in the form of granulomatous or calcified lesions, one would have great difficulty in positively establishing the primary site. Initially, histoplasmosis and coccidioidomycosis are pulmonary infections which may be followed in a minority of patients by dissemination. Blastomycosis involves the lungs as well as the skin. The affinity of the Cryptococcus for the central nervous system is well known. However, it may also cause disseminated disease.

Bacteriologically, the organisms are quite easily distinguished and grow readily on special media. Cryptococcus neoformans never forms a well-developed mycelium and grows as a yeast both as 37° C. and at room temperature. Coccidioides immitis grows as a mycelial phase at both temperatures. Only Histoplasma capsulatum and Blastomyces dermatitidis have a bi-phasic growth at the two temperatures. Both grow as a yeast on blood agar at 37°, and both form matted mycelial growth at room temperature. However, Histoplasma capsulatum has a tuberculate chlamydospore which is large and round with many small projections on the surface. This is readily distinguished from the microconidia of Blastomyces dermatitidis. In animals, all four organisms grow as a yeast phase. Histoplasma capsulatum is distinguished by its small size and intracellular abode. Coccidioides immitis typically occurs as spherules with doubly refractile walls which contain many small endospores. The wide gelatinous capsule is the hallmark of Cryptococcus neoformans.

Reliable skin tests have been developed for histoplasmosis and coccidioidomycosis utilizing an extract of media in which they were grown. The skin test for blastomycosis is less reliable and none is available for cryptococcosis.

A complement fixation test is available for histoplasmosis, coccidioidomycosis, and blastomycosis, but at the present time, except for actual recovery of the organism, there appears to be no valid test for cryptococcosis. In coccidioidomycosis, antibodies appear during the first month of an acute illness and persist for many months. As with the other fungus complement fixation tests, a rather low titer of 1:4 or 1:8 is considered significant, strongly suggesting infection at some time in the past. A rising titer is indicative of an active infection. The histoplasmin complement fixation test utilizes both a mycelial and a yeast phase antigen. The blastomycin skin test and the complement fixation tests have been known to cross react with histoplasmosis.

The treatment of histoplasmosis and coccidioidomycosis can be divided into two phases. First is the benign pulmonary disease which requires only symptomatic treatment and is usually self-limited. Until quite recently, the treatment of the disseminated forms of all these diseases was remarkable only in its failure. The mortality in all was quite high until the advent of amphotericin B. Isolated involvement by any of the organisms is amenable to surgical excision, and apparent cures of cryptococcosis of the lung, coccidioidomycosis of the skin and other organs have been reported.

Amphotericin B is an antibiotic derived from an unnamed species of streptomyces

grown from soil obtained near the Orinoco River in Venezuela. Two substances have been extracted from the filtrate of the organism, both of which are amphoteric and polyenes. These were named amphotericin A which is a tetraene and amphotericin B which is a heptaene. Amphotericin A, although more water soluble than amphotericin B, is less fungistatic and is not used clinically. As little as 0.05 microgm. per ml. of amphotericin B will inhibit Blastomyces and Cryptococcus *in vitro*. In our laboratory, the respiration of Cryptococcus neoformans appears to be significantly decreased by as little as 1.0 microgm. per ml. of the drug. Amphotericin B has a considerable degree of toxicity, although this appears to be more of a troublesome than dangerous nature. The predominant side effects are chills, fever, nausea, and vomiting. The blood urea nitrogen commonly rises during administration of the drug and almost invariably returns to normal after its discontinuance. At the present time, the mechanism producing the BUN elevation is not known and we are working on this problem with patients receiving amphotericin B. We have observed in three patients who have received this medication that the hemoglobin falls slightly, but usually rises again to normal levels after the drug is discontinued. The mechanism by which this is brought about is likewise unknown. Because of the poor absorption of amphotericin B from the gastrointestinal tract, it must be given intravenously. It should be given by infusion in at least 500 ml. of glucose and water slowly over several hours. A relatively low dose should be used initially, in the neighborhood of 15 to 20 mg. per day and this is gradually increased to 1 mg./kg. body weight per day or more if the patient can tolerate it. The highest blood level is obtained about 15 minutes after the infusion is completed, and with a single dose of 35 mg., a blood level of 2.5 microgm. per ml. has been reported in 45 minutes.[8] Following this, the blood level is maintained for about two hours, then it falls rapidly to about 1 microgm. per ml. and persists for about eight hours. Levels between 0.5 and 1.0 microgm. per ml. persist for approximately 24 hours. There appears to be little cumulative effect when given repeatedly. It has been shown that there is a direct relationship between the penetration of the drug into the cerebrospinal fluid and the level of the protein in the spinal fluid, in that the higher the spinal fluid protein, the greater the concentration of amphotericin B appearing in the fluid.

At the present time, I have been able to find a total of 23 cases of cryptococcal meningitis, with or without other involvement, treated by intravenous amphotericin B. Four moribund patients have been able to resume their normal activities, while others have had such residua as headaches and personality changes. Because of the protracted nature of the disease caused by Cryptococcus neoformans, it is too early to be sure about the long term effects of any treatment. One is reminded of the well-known case reported by Beeson[9] of the woman who lived for 16 years with proved cryptococcal meningitis during which time she had two full term pregnancies and two abortions. She finally died after many exacerbations and remissions of an internal hydrocephalus. The improvement reported, using amphotericin B, not only in cryptococcosis but in disseminated histoplasmosis, coccidioidomycosis, and blastomycosis, is striking, and quite beyond that reported by any other therapeutic agent. Still, one must recall that any chemotherapeutic agent, regardless of in vitro sensitivities, may be ineffective in a disease characterized by abscess formation and granulomata. This seems to be true, not only because the material may fail to penetrate into such an area, but because of the altered metabolism of the organism present there.

Follow-up subsequent to the conference: The patient was discharged seven weeks after this conference having received a total of 2.452 gms. of intravenous amphotericin B. During this last seven-week period his hematocrit ranged from 26 to 30 and his BUN from 14 to 54 mg.%. The leukocyte and platelet counts remained normal. The cerebral spinal fluid protein, the week of discharge, was 59 mg.%. The patient had gained about 30 pounds and there was no residual neurological deficit other than a

flattened affect. Although asymptomatic one month and two months after discharge, his spinal fluid protein and cell count were still elevated. Table I. Smears of the fluid were negative.

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FACULTY NEWS

Cummings to Head Department of Microbiology

Martin M. Cummings, M.D., former national director of medical research for the Veterans Administration, is new professor and chairman of the Department of Microbiology at the School of Medicine.

With the Veterans Administration since 1949, Doctor Cummings had headed the research service in the VA Department of Medicine and Surgery the past six years. Under his direction, VA research activity showed a marked increase. The clinical investigator and senior medical investigator programs were started, and a new research division on aging and on geographic epidemiology were established.

Doctor Cummings has held part-time academic positions since 1948, as instructor, then associate professor of medicine and associate professor of bacteriology at Emory University School of Medicine and as special lecturer in microbiology at George Washington University School of Medicine.

At the Medical Center he will continue research on sarcoidosis which he started at the Atlanta, Georgia, VA hospital. Another research interest is tuberculosis. He has been chairman of the Research Committee of the National Tuberculosis association since 1958 and has served as VA representative to the National Research Council and the National Advisory Health Council to the Surgeon General of the U. S. Public Health Service.

Doctor Cummings received his M.D. from Duke University School of Medicine in 1944; he interned at Boston Marine hospital and took residency training there and at Grasslands hospital, Valhalla, N.Y.

L. Vernon Scott, D.Sc., professor of microbiology, served as temporary Microbiology chairman after Florene Kelly, Ph.D., professor, resigned from the chairmanship early this year.

THE CITATION

MEDICO-LEGAL BRIEFS

Prepared by the Law Department of the American Medical Association

BILL INTRODUCED IN WISCONSIN ASSEMBLY WOULD ALLOW CERTAIN HOSPITALS TO CHARGE PATIENTS FOR MEDICAL AND ALLIED SERVICES—On February 10, 1959 a bill, No. 129A, was introduced in the Wisconsin Assembly, which provided, in part:

"In the proper conduct of their functions in the care and treatment of the sick and injured, non-profit hospitals as defined in s. 70.11 (4m) and hospitals owned, operated and maintained by the state or any political subdivision thereof may engage anesthesiologists, physiatrists, radiologists and pathologists, on a contractual basis, and charge the patient directly for services rendered by such person, where a contract for such services has been negotiated between the patient and such hospital. In such circumstances and in the treatment of such patient, the anesthesiologist, physiatrist, radiologist or pathologist shall exercise his professional judgment without supervision or interference by the hospital. Such hospitals may also charge patients directly for the services of their employees, including that of nurses, anesthetists, and medical assistants."

MEDICAL PROFESSIONAL LIABILITY BASED ON AGGRAVATION OF PREVIOUS INJURY—In a personal injury action the Supreme Court of Wisconsin stated that "It is true that where personal injuries resulting from a tort are aggravated by a doctor's malpractice, and it is impossible to separate the damages resulting from each wrong, both the original tortfeasor and the doctor may be liable for the entire damage, in which case a payment made to plaintiff by one of them will inure to the benefit of the other and require a corresponding reduction in any judgment recovered by plaintiff from the non-paying tortfeasor."

Heims v. *Hanke*, 93 N.W. 2d 455 (Wisc., Dec. 2, 1958).

DENIAL OF MEDICAL AND SURGICAL STAFF PRIVILEGES BY PRIVATE HOSPITAL NOT SUBJECT TO JUDICIAL REVIEW—The New Mexico Supreme Court held that the decision of a private hospital to deny medical and surgical staff privileges to a physician was not subject to judicial review. In this particular case the Court held that a hospital financed in part by a county bond issue, and in part by a county hospital association, and operated by the hospital association pursuant to a lease from the Board of County Commissioners was a private hospital.

Akopiantz v. *Board of County Commissioners of Otero County*, 333 P. 2d 611 (N.M., Oct. 28, 1958).

PHYSICIAN'S CHARGES UPHELD—The Municipal Court of Appeals of the District of Columbia has upheld a judgment for a physician for medical treatment rendered a patient referred to him by another physician. The patient defended on the ground that the services were not furnished at her request and that the amount claimed was not reasonable. The Court held that the services were rendered under an implied contract and that the amount claimed was not unreasonable.

Hankerson v. *Thomas*, 148 A. 2nd 583 (D.C., Feb. 24, 1959)

PHYSICIANS RE-REGISTERING UNDER THE NARCOTIC LAWS—Every physician who "distributes, dispenses, gives away, or administers narcotic drugs" to patients must pay a tax of $1 and register with their District Director of Internal Revenue on or before July 1 of each year. It is the Internal Revenue Service's custom to accept an offer of compromise of $5 for the first offense and $10 for the second offense from physicians who are delinquent or tardy in complying with these requirements.

Further information on the preceding cases may be obtained from the Law Department, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.

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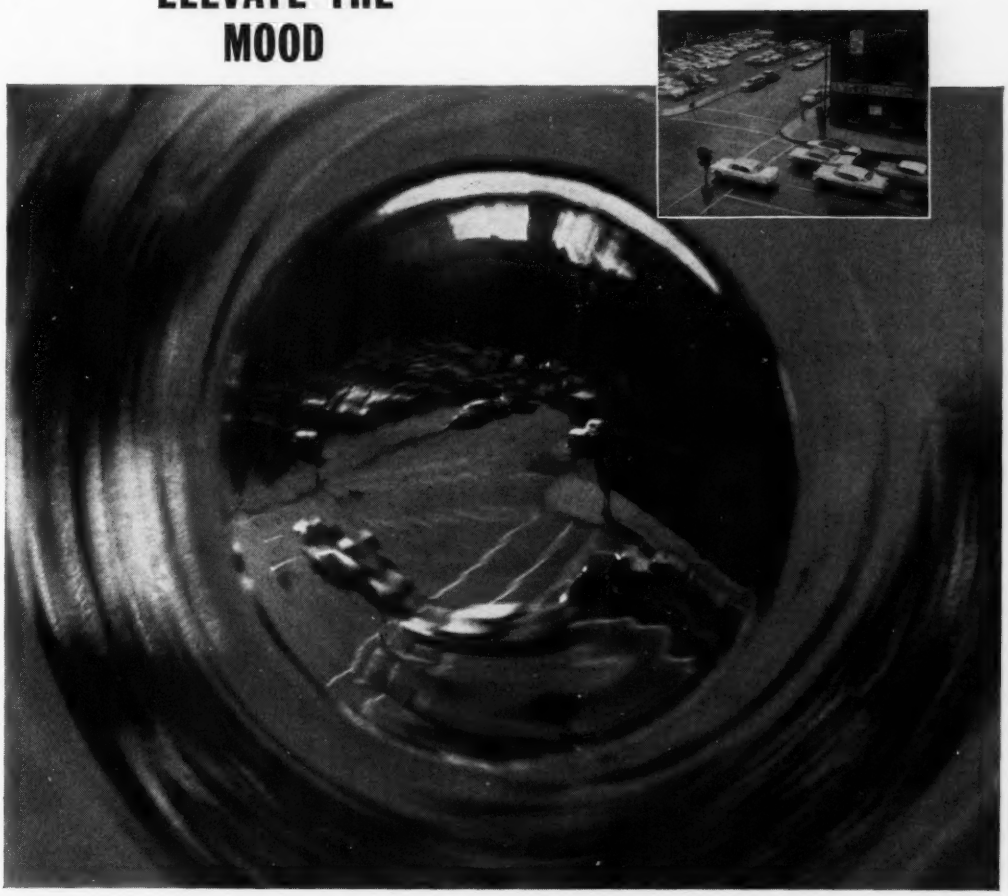

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News

Insurance for Senior Citizens Under Study

At the direction of the House of Delegates, the Senior Citizens Insurance Committee met August 28 to discuss the development of an indemnity-type health insurance program for Oklahomans who are over 65 years old. The "indemnity" approach to the challenge of an aging population came as a result of the action taken by the House of Delegates on August 2, when they squelched a proposal for a service-type program for the low income elderly.

In investigating the possibilities of indemnity coverage for this age segment, the committee recognized the limitations placed upon it by the Delegates and considered the development of a medical care program rather than a medical-hospital package. There was much discussion in this regard since it was the opinion of some that the total cost of medical and hospital care should be considered, particularly from a merchandising standpoint, if the voluntary enterprise approach were to supplant the alleged need for federal legislation. Initial work in planning for medical-hospital coverage of the aged indicated that the total annual premium for such a service should not exceed $6.00 per person. Representatives of Blue Shield, who were invited guests at the committee meeting, stated that if physician activity were limited to the development of medical care coverage, the Blue Cross board would no doubt investigate the possibility of initiating a companion program to cover costs of hospitalization.

Mark R. Johnson, M.D., acting chairman of the OSMA committee, offered the following suggestions as alternatives in the development of a program for physician services.

1. The development of an indemnity program which would incorporate a deductible feature and thereby lower the premium and lessen unnecessary utilization.

2. The conversion of the previously rejected service plan (see August *Journal*) to an indemnity program, (Note: Since hospitals had agreed to prime or out-of-pocket costs under the service plan and would not necessarily do so if physicians took the indemnity avenue, such a conversion would likely necessitate a reduction in the fee schedule—50% of Medicare—if a marketable program were to be achieved).

3. The removal of the age limits from the Blue Shield 200 contract, with a possible reduction of the length of stay and fee schedule in order to permit a saleable premium.

In regard to the first alternative, it was reported that experience with such programs, within and without the state, indicated that co-insurance plans were difficult to sell and, despite some effect upon admission rates, had failed to curtail length of stay.

The second alternative was also thought to be ill-conceived from an indemnity standpoint since such a conversion would result in an extremely unrealtistic fee schedule.

It was generally agreed by the group that the association should develop a program that would assure reasonably adequate compensation for *medical care* and, at the same time, not jeopardize a total medical-*hospital* program by pricing it beyond the reach of the group it is to serve. To best accomplish this objective, it was decided that the committee would ask the Board of Trustees of the Blue Shield Plan to consider extending the standard Blue Shield contract to those persons over the age of 65. Under such a program, it was felt that physicians could apply their own means test in determining the elderly recipients' ability to pay and either accept the Blue Shield fee as payment in full or bill the patient for additional charges where indicated.

The Blue Shield office has been requested to place the proposal before its board and notify the OSMA of any action taken

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Model Nursing Home Opened in Coalgate

Ruth Wilson Hurley Manor, the nation's first community owned and privately sponsored nursing home, was opened May 4, 1959 in Coalgate, Oklahoma. The manor, which was planned in every detail to be a *home* rather than an institution for the retired elder citizen, was named in honor of Ruth Wilson Hurley, who with her husband, General Patrick J. Hurley, contributed $123,000.00 toward financing the structure. It has been established as a non-denominational, non-sectarian and non-profit organization.

New Accommodations Offered

The manor is prepared to care for 42 residents, however, it is planned for future expansion. Central facilities such as dining room, kitchen, laundry and main lounge will accommodate 100 persons. Private and semi-private rooms are available, all of which have outside exposure and individual controls for heating and air conditioning. The corridors and bath areas are equipped with hand rails. There are three large enclosed sunporches, with doors wide enough for the bed-fast person to be rolled out to enjoy fresh air and sunshine.

A central nurses station is located so that entrances to each room can be observed by the person in charge. Other unique features include telephone booths accommodating wheel chairs, a library with hundreds of books which have been donated and will be kept current by various clubs, x-ray and cardiograph facilities and doctors treatment and consulting rooms.

The manor is decorated in color schemes and furnishings designed to provide a background of cheerful hominess. Residents in the manor may bring their own clothes, photographs, cosmetic items, radio or TV. A detailed study was made to provide only furniture particularly comfortable and safe for the senior citizen.

Full Range of Services

Preparations have been made to care for the ambulatory, semi-ambulatory, bedfast and advanced senile. Services offered each resident include: 24 hour nursing service, physical and occupational therapy, oxygen for emergency use, special diets, bed time refreshments, personal laundry, routine annual chest x-ray, prayer room, barber-beauty care, recreational facilities and wheel chair storage.

Recreation Encouraged

Residents of the manor are encouraged to continue old friendships. Friends, as well as relatives, are always welcome, without the restriction of visiting hours. Small private parties may be held in the large lounge. Parties to celebrate Christmas, birthdays and other holidays will be planned. Clubs are encouraged to hold their meetings in the lounge and residents are urged to continue memberships in their clubs.

Fire-Proof Structure

Exterior walls are of concrete block and face brick. The entire roof framing is steel with metal deck, insulated with four inches of rock wool. The ceiling itself is of fiber glass panels installed on aluminum framing. Floors throughout are concrete slab.

All toilet and shower rooms have ceramic tile floors and wainscoat. Quarry tile is used in the kitchen and day room. All other floors, including patients' rooms and all corridors, are of vinyl asbestos tile. Doors are hollow-metal set in steel frames and windows throughout the building are of aluminum.

Applications for Residency Open

Residents of Ruth Wilson Hurley Manor may come from any community in the United States, and are considered full members of the Coalgate community. Basic rates are based on the degree of care required by the resident's health. They range from $150 to $200 a month, based upon the medical report made out from the results of the physical examination. A report on the resident's health is sent to the nearest of kin.

The manor is planned in care, structure and equipment to give the type of care made possible by recent advances in medical knowledge. In conformity with this knowledge, senior citizens are offered excellent health care plus adequate interests and personal contacts to fill their emotional needs and lead healthier, more constructive lives.

American Fracture Association To Meet in November

The American Fracture Association will hold its 20th Annual Meeting, November 1 through November 4, 1959, at the Roosevelt Hotel, New Orleans, Louisiana.

The first day of the meeting will be devoted to an instructional course with selected subjects and guest speakers. Scientific sessions will continue on the following three days. Discussions will not be prepared but will arise extemporaneously from the floor. All papers, with a few exceptions, will be limited to fifteen minutes. Problem cases may be brought for discussion accompanied by x-rays during the forum period.

A social hour has been planned for the evenings of November 1 and 3rd. Ample time will be available for individually planned tours, shopping and special entertainment has been planned for the ladies attending the convention.

An optional trip has been planned for the morning of November 5th to tour the National Leprosarium, U.S. Public Health Service Hospital, located at Carville, Louisiana.

Tuition fee for the course, which has been approved for four and one-half hours credit, Category 2, by the American Academy of General Practice, will be $10.00. Detailed information is available by writing to H. W. Wellmerling, M.D., Secretary-General, The American Fracture Association, 610 Griesheim Building, Bloomington, Illinois.

E. A. Johnson, M.D., Honored

E. A. Johnson, M.D., Choctaw County's oldest doctor, both in age and service, was honored by his associates at a dinner given in his honor at the Memorial Hospital, Hugo, September 10. Doctor Johnson's fellow physicians and the board of control of the hospital chose his 79th birthday as the day to honor him for his nearly half century of medical practice, most of which has been spent in Choctaw county.

A native of Alabama, Doctor Johnson graduated from Atlanta Physicians and Surgeons College, coming to Hugo in 1919. He has a special interest in obstetrics and estimates that he has delivered 4,000 babies.

Friends and associates presented Doctor Johnson with an engraved plaque in recognition for his long period of service to his profession.

Concerning retirement, 79-year-old Edgar Johnson scoffs at the idea. "Retirement amounts to social rejection and, it even intimates uselessness. And, it might even be fatal," declared Hugo's dean of physicians. "I'm not retiring," he added, "I'll be practicing medicine as long as I can go."

Among the guests attending the dinner was Alfred T. Baker, M.D., President of the Oklahoma State Medical Association.

An Outstanding Example of Community Action

Canton Steps Out for a Doctor

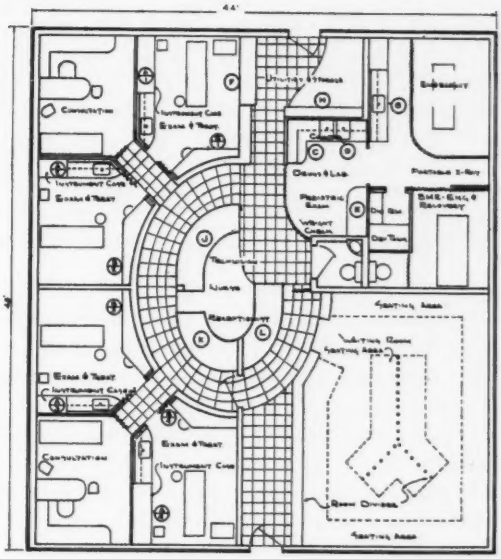
Canton wants a physician and is doing something about it. The citizens of this northwestern Oklahoma community recognized their poor competitive position in relation to larger cities and set about a realistic appraisal of their problems in an effort to make their city more attractive to a young doctor of medicine.

Canton's problem is not unique, but its approach to a solution is. Many small communities today are handicapped when competing for the services of doctors. Physical facilities are non-existant or inadequate and the modern-day physician must rely heavily upon adequate facilities and equipment if he is to achieve his full capabilities.

Coupled with the great advancements made in medicine—and the consequent need for more elaborate facilities and equipment —is the nationwide trend toward centralization that has taken place in the provision of all types of goods and services. As small town doctors die or move away, fewer younger doctors have moved in. In most cases this exodus has been offset by improved transportation to the extent that the people are served well by physicians in neighboring market centers.

The citizens of Canton, however, felt that they could support a medical facility of their own and decided that they wanted such a convenience. A Health and Welfare committee was formed and this group contacted the Sears-Roebuck Foundation for its assistance in determining the town's potential and planning a proposed medical practice unit.

A survey was conducted, the findings of which revealed that the community could support one and possibly two physicians.



It was estimated that about fifty patients left the Canton area daily for medical care and that nearly $100,000 per year went with them for transportation, medicines and professional fees.

Encouraged by the findings of the survey, the committee met with representatives of the medical association and received their offer of assistance in obtaining a physician. Architectural plans for a two man unit were furnished by Sears, a $35,000 bond issue was voted and the dream was on its way to becoming a reality.

It was agreed that the building would be offered to an incoming physician on a lease-purchase basis. Monthly rent has not been announced, but it will reportedly be handled on a non-profit arrangement.

Interested physicians should contact Earl Goode, Canton, Oklahoma.

"Aging" to Highlight Welfare Association Meeting

A. L. Chapman, M.D., assistant to the Surgeon General and chief of the Division of Special Health Services, U.S. Public Health Service, will speak on health care for the aging during the annual Oklahoma Health and Welfare Association meeting November 16-18 in Oklahoma City.

Doctor Chapman will address a dinner meeting at 7 p.m., Tuesday, November 17. It is one of two sessions open to the public. At the second, at 10 a.m., Wednesday, November 18, Lieut. Gov. George Nigh will moderate a discussion of the Oklahoma report to the 1960 White House Conference on Children and Youth.

All general sessions, sectional meetings and forums will be held in the Biltmore hotel.

Two of the sectional meetings, which run concurrently, should be of special interest to physicians. Robert C. Lowe, M.D., associate professor of medicine and research consultant in hospital organization and administration, University of Oklahoma Medical Center, is chairman of a section on "Community Dimensions of Medical Care." Another section, with Forest R. Brown, M.D., Oklahoma State Department of Health, as chairman, will consider "Aging in a Modern World." Each will meet at 2 p.m., Monday, November 16 and at 9 a.m. and 2 p.m., Tuesday, November 17.

The "Community Dimensions of Medical Care" program will begin with a discussion of national patterns of change and trends in health care by the following panelists: Leonard Martin, Ph.D., director of AMA's Economic Research department; A. Guy Daniels, program representative, Hospital Facilities division, USPHS; Roy Stewart, *Daily Oklahoman* columnist.

Next "the consumer questions the experts," with a panel of "consumers," including Stewart and representatives of labor, industry and the rural public, quizzing a panel made up of Doctor Martin, Daniels and representatives of the Hospital Insurance council, Blue Cross-Blue Shield and the State Department of Public Welfare.

On the following day, section participants will move to "the Oklahoma Community and its Health Program — Sources and Resources." Speakers are Tom Carter, Oklahoma City, president-elect, Oklahoma Hospital Association; Paul Snelson, director of the state health department's Hospital Division; Mark R. Johnson, M.D., instructor in medicine at the University of Oklahoma Medical Center; Charles Green, M.D., Lawton, vice-president, Oklahoma State Medical Association; Mrs. Katherine Hudson, social worker, University of Oklahoma Medical Center.

A group work session on problems in community planning for health care services and facilities follows.

The section on aging will have Doctor Chapman and Waldo Stephens, Oklahoma City, chairman of the President's Committee on the Handicapped, as speakers.

A panel on planning for the later years will be composed of Stanley Kimler, M.D., clinical director of Central State Hospital; John W. DeVore, M.D., instructor in medicine at the OU Medical Center; Olive MacDonold, director of public health nursing for the Tulsa city-county Health Department; Elouise Faull, of the State Department of Public Welfare field service, and also representatives of housing, industry and employment.

Second Councilor District Meets in Ponca City

The county medical societies of councilor District 11 held their traditional fall banquet at Ponca City's Country Club, September 15.

Nearly seventy-five physicians and their wives from the five counties of the district were present for the social hour and dinner. Councilor J. E. Murphree, M.D., presiding officer, introduced OSMA President Alfred T. Baker, M.D., who spoke to the group on association activities. Mrs. Clifford Bassett, President of the Woman's Auxiliary to the OSMA, also reported on the activities and projects of the distaff side of Oklahoma medicine.

Noted Psychiatrist to Address Student AMA

Corbet Thigpen, M.D., psychiatrist author of "The Three Faces of Eve," will be the principle speaker at the annual banquet of the Oklahoma Chapter of the Student American Medical Association. The dinner, sponsored by the OSMA, is scheduled for the Petroleum Club, Oklahoma City, October 30.

Doctor Thigpen will address the group on the application of psychiatric techniques in the practice of medicine. In addition to the psychiatrist, other special invitees will be Russell F. Staudacher, Executive Secretary of the national Student AMA, and his associate, Mr. Robert Reed.

Officers and Councilors of the OSMA will receive invitations to serve as hosts to their future colleagues. It is estimated that three hundred students, physicians and guests will attend the event, which is designed as the kickoff meeting of an active year for the student's organization.

The Oklahoma Student AMA is one of the outstanding chapters of the nation. It was doubly honored last spring when William Kirkham, Ph.D., was elected national president and Mrs. W. Stanley Muenzler was elected to the same office in the student auxiliary.

The president of the local chapter is Mel Brill.

Oklahomans Attend St. Louis Legislative Meeting

Six representatives of the Oklahoma State Medical Association attended the AMA Medical Legislative Conference held October 2 and 3 in St. Louis. They were: President A. T. Baker, M.D., President-Elect Walter E. Brown, M.D., Council on Public Policy Chairman James W. Kelley, M.D., Federal Legislative Committee Chairman J. R. Stacy, M.D. and Executive Secretary R. H. Graham.

The group heard talks on the history of AMA legislative activities and legislative teamwork, presented by McKinnie L. Phelps, M.D., and F. J. L. Blasingame, M.D., respectively. In addition, panel discussions were conducted on such subjects as "H.R. 4700—What Has Been Done," "H.R. 4700—What Will Be Done" and "Political Action By Organized Medicine." Guest Speaker for the October 3 luncheon was Congressman Thomas B. Curtis, Missouri. The meeting was planned and directed by the AMA Council on Legislative Activities. John E. McDonald, M.D., Tulsa, is a member of the Council and was also in attendance.

Insurance for Senior Citizens . . .

(Continued from Page 690)

or sentiment expressed. Upon receipt of the attitude of the board, the committee will draft its final recommendations and submit them for the approval, rejection or modification of the association's policy-making bodies.

Physicians attending the committee meeting were: A. T. Baker, M.D., President, Mark R. Johnson, M.D., Acting Chairman, R. G. Obermiller, M.D., E. K. Norfleet, M.D., F. C. Wallingford, M.D., Burge F. Green, M.D., and H. Thompson Avey, M.D.

round up time

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A practical program for physicians who want a first hand review of the latest approaches to patient care.

144 outstanding specialists from every field in medicine will conduct the 13th Clinical Meeting. The four day program will feature: Round table sessions, panel discussions, symposia, lectures, closed circuit telecasts and motion pictures, plus 300 scientific and industrial exhibits.

the 1959 clinical meeting

american medical association DECEMBER 1-4

The beautiful new Memorial Auditorium within walking distance from downtown Dallas is the site for the 13th A.M.A. Clinical Meeting. Completely air-conditioned, the Auditorium features 110,000 square feet of exhibit space, a 1,773-seat theater and 10 meeting rooms where the scientific sessions will be held. There is also a 1100-car parking lot adjacent to the building.

Dallas, population 1,050,000, is rapidly becoming one of the great convention centers of the nation. It combines old fashioned Texas hospitality with some of the most modern convention facilities to be found anywhere. It has excellent skyscraper hotels, and numerous night clubs and restaurants presenting top-flight entertainment.

Cultural facilities include the famous Margo Jones theatre, the Dallas Civic Opera and the Dallas Symphony Orchestra.

PROGRAM HIGHLIGHTS

The Role of Medicine in the Space Age—Hubertus Strughold, Professor and Advisor for Research, School of Aviation Medicine, Randolph AFB

Indications for Hysterectomy—Willis H. Jondahl, Harlingen, Texas—Lecture

Rheumatoid Arthritis—W. Paul Holbrook, Tuscon, Ariz. Panel Moderator

Colloidal Isotopes and Leukemia—Joseph M. Hill, Dallas—Lecture

Treatment of Diabetes—Randall G. Sprague, Rochester, Minn.—Panel Moderator

Infectious Diseases in Children—Harris D. Riley, Jr., Oklahoma City—Panel Moderator

Tranquilizers in Medical Practice—Stewart Wolf, Oklahoma City—Lecture

Surgical Approaches to Parkinson's Disease—William W. McKinney, Fort Worth—Lecture

Congestive Heart Failure—James V. Warren, Galveston—Panel Moderator

Peptic Ulcer in Rheumatoid Arthritis—Lloyd G. Bartholomew, Rochester, Minn.—Lecture

Immunization and its Future—Blair E. Batson, Jackson, Miss.—Lecture

Children's Eyes—Tullos O. Coston, Oklahoma City—Lecture

Obstetrical Emergencies—Willis E. Brown, Little Rock, Ark.—Panel Moderator

Hernia Repair—Francis C. Usher, Houston—Lecture

Premarital and Marital Counseling—Oren R. Depp, New Orleans—Panel Moderator

Anticoagulants and Choice of Drugs—James W. Culbertson, Memphis, Tenn.—Lecture

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Dallas Rapidly Becoming Leading Convention Center

The scene of the American Medical Association's 13th annual clinical session Dec. 1-4 will be in Dallas, Texas, called "Big D" by its residents.

Founded in 1841, metropolitan Dallas now has a population of more than a million persons, with some 680,000 living in the city itself.

Geographically situated at the center of the mid-continent oil fields, Dallas is headquarters for more than 1,000 firms in the oil production and allied industries.

Aircraft production, insurance, finance and banking, electronics, and regional wholesale distribution are the city's other leading industries. It is the home of more insurance companies than any other city in the nation.

Dallas is rapidly becoming a leading convention center, ranking ninth among convention cities in 1958. Its new Memorial Auditorium provides 110,000 square feet of exhibit space in addition to its other facilities for meetings. Dallas has over 200 hotels and motels with some 16,000 rooms.

Visitors find Dallas a fashion capitol, with its wide variety of fine stores that satisfy every taste and pocketbook. The city has also made its mark in the field of women's wear manufacturing.

Dallas is the home of Southern Methodist University, known throughout the country for its law and engineering courses, theological studies, school of business administration, and pre-medical courses.

The Southwestern Medical College of the University of Texas, Baylor Dental School, University of Dallas and Dallas Theological Seminary are also there. It has gained fame as a medical center and now has 29 hospitals. The Dallas County Medical Society has more than 1,100 members and the Dallas County Dental Society more than 400.

The park systems of Dallas, Highland Park and University Park include more than 100 different parks, with more than 6,500 acres. They are enjoyable throughout the year because of the Texas climate. Outdoor activities are just as pleasant in mid-February as in August. There is only an occasional snow. Dallas is one of the few cities in the Southwest having a zoo in which most of the animals are displayed in native surroundings.

Dallas has a wide variety of entertainment, with some 70 theaters and many nightclubs and restaurants. There are Mexican, Swedish, Italian, German, Greek and Chinese restaurants.

Doctors Go on Blue Cross "County Rating Program"

Physicians and medical assistants who have been enrolled in the special, statewide Blue Cross program are now being transferred to the community groups in the counties of their residencies. The transfer, announced on September 15, places physicians and assistants under the "County Rating Program" inaugurated last year and will call for dues adjustments based upon the amount of care used in the county.

In explanation, the Blue Cross announcement described the action as a move ". . . in the interest of consistency and fairness to all members . . ." It was pointed out that localized responsibility for the determination of dues has had its effect throughout the state, and the three groups who can make or break the program—physicians, hospitals, public—should rightfully share this responsibility at the local level.

A new identification card and an interim dues notice was scheduled to reach the transferees by October 12. In keeping with dues collection policies employed for community groups, physicians will no longer be able to pay annually. All members will have a choice between quarterly or monthly dues payments.

The statement expressed concern that physicians would understand the importance of their personal dues being bracketed with their patients and neighbors. It was also mentioned that the physician's statewide group has always been one of high utilization, penalizing many of its members.

SMA Will Hold November Meeting in Atlanta

When Southern Medical Association holds its 53rd annual meeting in Atlanta November 16-19, it will mark the fifth time that the 13,000-member body has met in Georgia's Capital City.

Atlanta was chosen for the annual meeting in 1908, only two years after the association was formed, when membership numbered a mere few hundred from a half dozen Southern states. Doctor B. L. Wyman, Birmingham, was president. Scientific sections at the time of the 1908 meeting were only three in number—Surgery, Medicine and Otolaryngology—Compared to the comprehensive twenty of today.

Again in 1916, when Doctor Robert Wilson of Charleston, South Carolina, served as president, SMA chose Atlanta as its meeting place.

By 1926, membership in the association has expanded to include all of the 16 Southern states and the District of Columbia, now forming Southern Medical Association, when Georgia's Capital city was again chosen. Doctor C. C. Bass, New Orleans, was association president.

In 1953, when the number of scientific sections had climbed to the present 20 and membership had increased to 9,000 Atlanta again received the nod as the site for the annual meeting. This year, Doctor Walter C. Jones, Miami, Florida was president.

And now in 1959, with membership totaling a whopping 13,000, representing a phenomenal growth in the last few years, Atlanta is host once more to the medical association that is called one of the country's most influential and useful. Members include physicians from the Canal Zone and Puerto Rico, as well as the 16 Southern states and Washington, D. C.

Doctor Milford O. Rouse, Dallas, Texas is now president. At the concluding session, he will hand the reins of office to the president-elect, Doctor Edwin Hugh Lawson, New Orleans.

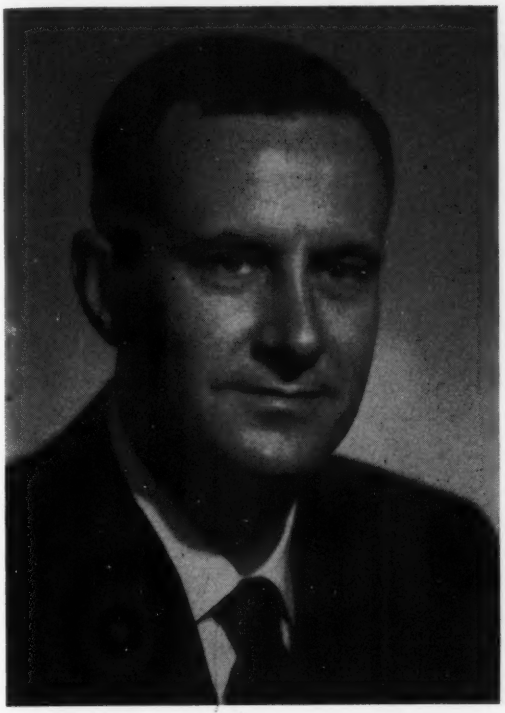
Atlanta is one of three cities among 28 of the South's largest which has been honored five times as the choice of SMA membership for its annual meeting. The other two are New Orleans and Miami. The important first organizational meeting was held in Chattanooga, Tennessee in 1906.

Southern Medical Association has also elected three presidents from Atlanta. They were Doctor Stewart R. Roberts, 1925; Doctor Frank K. Boland, 1937; and Doctor Edgar G. Ballenger, 1945.

Healdton Nurse Wins Lottinville Award

Patricia Ann Clark, of Healdton, displays the silver service she received as winner of the second annual Lottinville Award for Excellence in Nursing, presented September 6 at finishing exercises of the University of Oklahoma School of Nursing. She was chosen outstanding graduate by a committee representing the Oklahoma State Medical Association and the OU Schools of Medicine and Nursing. The award was established last year by Savoie Lottinville, director of the University of Oklahoma Press, to stimulate interest in nursing.

Brown to Head Surgeon's Group



Irwin H. Brown, M.D., Oklahoma City, took office as president and William Patton Fite, Sr., M.D., Muskogee, was named president-elect of the Oklahoma Chapter of American College of Surgeons at the annual meeting September 12 at Sequoyah State Park.

Doctor Brown, assistant professor of surgery and director of postgraduate education at the University of Oklahoma School of Medicine, succeeds Ralph A. McGill, M.D., Tulsa, a past-president of Oklahoma State Medical Association.

The surgeons also elected: Joe M. Parker, M.D., Oklahoma City, vice-president; Hays R. Yandell, M.D., Tulsa, secretary-treasurer; and Robert B. Howard, M.D., Oklahoma City, councilor.

Two American College of Surgeons fellows were cited for meritorious service. They were Doctor McGill and Clarence E. Northcutt, M.D., Ponca City.

Robert S. Myers, M.D., Chicago, assistant director of the College, commended the chapter on its program aimed at prevention of athletic injuries, declaring the problem of "how to prevent boys from getting maimed and disabled is becoming something of great concern to doctors."

He also declared that efforts to stimulate young doctors to be interested in further research and training "can't help but make for better future care of patients."

He referred to the chapter's practice of selecting authors of the best papers pertaining to surgery at the annual Oklahoma House Staff association meeting to present the scientific program as chapter guests at the annual meeting.

Papers this year were presented by: Norman A. Cotner, M.D., now in general practice at Grove; C. A. Grimm, M.D., John Kyriacopoulos, M.D., and David D. Snyder, M.D., all residents at the OU Medical Center; Harold W. Calhoon, M.D., resident at Wesley Hospital, Oklahoma City; and Jack Stephenson, M.D., resident at St. Anthony Hospital, Oklahoma City.

Regional AMA Conference On Aging Set for Kansas City

Kansas City's Hotel Muehlback will be the site for the AMA's Regional Conference on Aging, November 16-17. The conference, one of eight to be held nationally, is designed to explore the opportunities for positive health and meaningful living among older people through exercise of individual, group and community incentive.

Jointly sponsoring the event will be the state medical societies of Oklahoma, Missouri, Kansas, Illinois and Nebraska. The Oklahoma State Medical Association will be officially represented by Alfred T. Baker, M.D., President, J. W. Morledge, M.D., Chairman of the Committee on Aging and Don Blair, Associate Executive Secretary.

Other Oklahomans who will appear as speakers are: John W. DeVore, M.D., J. R. Stacy, M.D. and Edith Wallace, Daily Oklahoman columnist.

Tulsa Physicians Honored

Doctor Marshall O. Hart (left), Councilor from Tulsa County, presents certificates of Life Membership in the Oklahoma State Medical Association to Doctor Luvern Hays (center) and Doctor H. W. Ford (right) of Tulsa. The presentation was made at the September 14th meeting of the Tulsa County Medical Society at the Blue Cross-Blue Shield Building. Doctor Hays recently retired from the practice of pediatrics; she entered practice in 1929. Doctor Ford, a member of the staff of the Tulsa Clinic, completed 50 years in the practice of medicine two years ago.

M.D.'s May Deduct Income-Producing Entertainment

In a Special Ruling dated June 13, 1959, the Treasury holds that a physician may deduct the cost of entertaining other doctors (as well as patients), provided he can show that such expenses are clearly related to the production of income. In determining the deductibility of such expenses the Treasury will consider: (a) specific purpose of entertainment; (b) nature of taxpayer's practice; (c) period of practice and number of patients; (d) percentage of patients received as referrals; (e) names of those entertained and reasons why additional income could reasonably be expected from them; (f) whether referrals were actually received from the doctors entertained; (g) number of times individual doctors were entertained during the year, inasmuch as repeated entertainment indicates a personal motive; and (h) whether other doctors in the same type of practice in the locality have entertainment expenses.

While this list of requirements may appear difficult to satisfy, they are actually only different aspects of the same point: Is there a reasonable expectation of referral business from the doctor entertained?

Annual Meeting Plans Underway

Plans are now being formulated for the OSMA's 1960 Annual Meeting, scheduled for May 1-4 in Oklahoma City. Although in its early stages of development, the state's largest medical conference promises to be an outstanding affair.

General Chairman C. M. Bielstein, M.D., Oklahoma City, has taken a unique approach in developing the scientific program format by asking the presidents of sister medical organizations in the state to serve on the Program and Scientific Works Committees. According to Doctor Bielstein, some meetings of recent years have apparently not had sufficient universal appeal to achieve optimum attendance. It is hoped that permitting allied groups to have a voice in the planning will promote interest from specialists and generalists alike.

To encourage better attendance from specialty societies, the committees have agreed that the general program will end at 3:00 p.m., Monday, May 2, in time to permit related groups to conduct meetings of their own organizations that afternoon and evening. In the past, many societies met on the weekend preceding the OSMA event and the physicians returned home without registering at the state association function.

Presidents of the societies represented on the Scientific Works Committee are now contacting guest speakers of their respective choices. Doctor Bielstein is asking the committee to accellerate its efforts in order to assure early confirmation of the scientific portion of the program.

Serving on the Program Committee are: H. Thompson Avey, M.D., Oklahoma City; Irwin H. Brown, M.D., Oklahoma City; Edmond Kalmon, M.D., Oklahoma City; Walter Joel, M.D., Oklahoma City; J. R. Stacy, M.D., Oklahoma City; Jim Taylor, M.D., Oklahoma City; Norris Robertson, M.D., Oklahoma City; Roger Reid, M.D., Ardmore; Mark Everett, M.D., Oklahoma City; H. K. Sowell, M.D., Oklahoma City; Leonard Eliel, M.D., Oklahoma City; John Records, M.D., Oklahoma City; Bert F. Keltz, M.D., Oklahoma City; and George H. Guthrey, M.D., Oklahoma City.

Serving on the Scientific Works Committee are: Bert F. Keltz, M.D., Chairman, Irwin H. Brown, M.D., Edmond Kalmon, M.D., J. R. Stacy, M.D., Jim Taylor, M.D., Norris Robertson, M.D., Roger Reid, M.D., Mark Everett, M.D., H. K. Sowell, M.D., Leonard Eliel, M.D., John Records, M.D., George H. Guthrey, M.D., and C. M. Bielstein, M.D.

Editor, Staff to Attend Conference

Ben H. Nicholson, M.D., Editor of *The Journal*, Don Blair, Associate Business Manager, and Louise Martin, Editorial Assistant, plan to attend a national state medical journal conference in Chicago, October 26 and 27. The conference, which is under the direction of the State Medical Journal Advertising Bureau, is a biennial event designed to furnish state staffs with the latest information on medical journalism and advertising.

Topics for the program include: "New Trends in Magazine Format," "Abstracts from AMA Specialty Journals for Publication in State Journals," "Printing Costs Can Be Cut," "Indexing Techniques," "Legal Aspects" and "In Defense of the Printed Word As Means of Medical Communication." From the pharmaceutical industry, topics will be presented on such matters as research, marketing practices and cooperation between editors and advertisers.

OU to Offer Course in Radioisotope Techniques

The University of Oklahoma has announced plans for a new extension course for industry to be held in Norman, November 2-6, 1959.

The course, Radioisotope Techniques, is designed for personnel who have the responsibility of handling radioisotopes, such as engineers, scientists, medical doctors and technicians. It is also of value to those persons who require a general background as to related problems in the use of radioactive materials.

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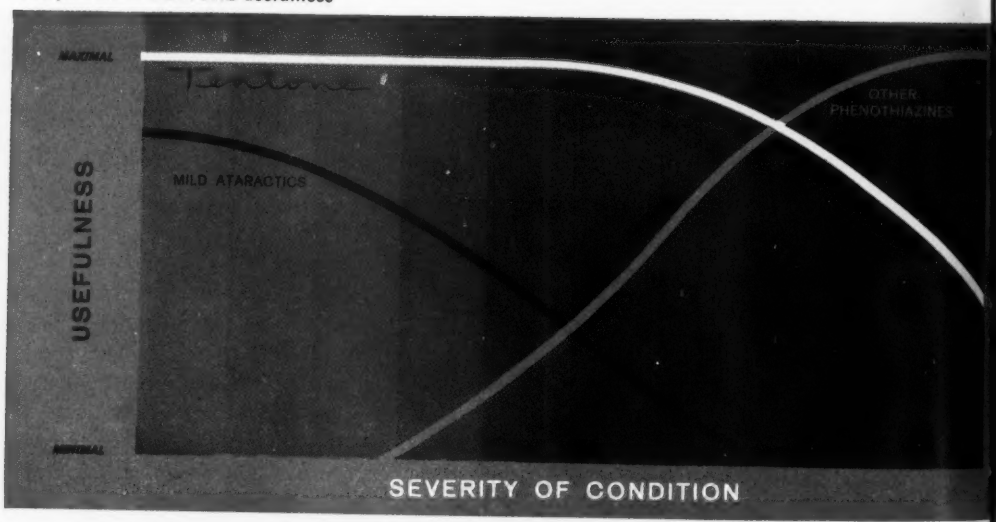

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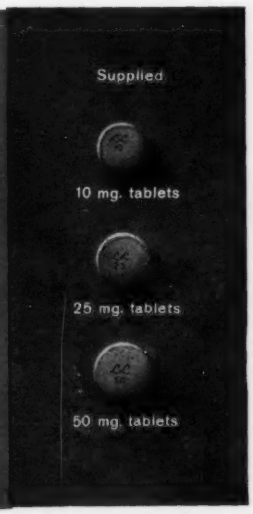

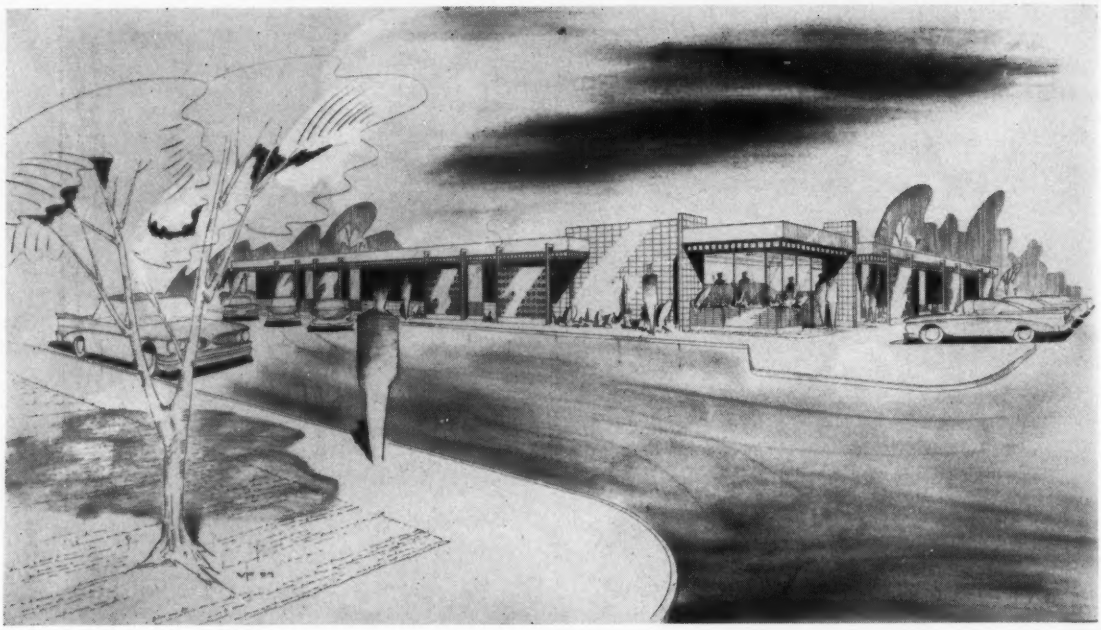

Six Muskogee Physicians Plan New Offices

Six Muskogee physicians plan to office in a new Eastern Hills Building now under construction at 16th and Okmulgee in Muskogee.

The physicians are W. N. Weaver, M.D., Joseph James, M.D., W. S. Dandridge, M.D., Glen Berkenbile, M.D., Ben Gaston, M. D., and Mary Hamilton, M.D. Also officing in the building will be Joe Teaff, D.D.S.

Construction was started August 25 and is expected to be completed early in 1960. The building, designed by Turnbull, Mills, Benham and Company, architects and engineers, Oklahoma City, will provide separate street entrances to each suite as well as private rear entrances. Masonry solar screens will emphasize and shade the entrance to each suite. Each suite will have its own control thermostat for the central year-round air conditioning.

Plans include a large lounge on the basement level for building tenants. A pharmacy will be centrally located on the ground level.

The building will be owned and operated by the Eastern Hills Building Company of Muskogee.

M.D.'s Send $717 to AMEF in August

Twenty-four Oklahoma physicians and the Woman's Auxiliary to the OSMA contributed $717.00 to the American Medical Education Foundation during the month of August.

The Average contribution was slightly less than $30.00 each, and two physicians contributed more than once during the month.

Formed in 1951 by the American Medical Association, the A.M.E.F. is dedicated to the private support of the nation's eighty-two medical schools. Contributions to the Foundation assure the continuation and expansion of medical education by providing yearly grants to each school in support of its teaching budget.

Contributions, which may be earmarked to the school of the physician's choice, should be payable to the American Medical Education Foundation, 535 North Dearborn Street, Chicago 10, Illinois.

25 YEARS AGO

Articles published in *The Journal* of the Oklahoma State Medical Association, October, 1934.

SKIN GRAFTING

John F. Burton, M.D., F.A.C.S., Oklahoma City

There are many erroneous ideas relative to skin grafting. Whether these are due to the dramatic possibilities offered by newspaper publicity, to misinterpretation of results, lack of adequate observation, or just intentional lack of respect for the truth, I know not. I do know that I am constantly hearing bizarre tales and results reported that cannot be duplicated by careful, conscientious scientific effort. During the past three years I have given this subject considerable study and experimentation and what I bring you is somewhat of a summary of my observations and review of what is definitely known and proven about this subject.

Skin grafting has long been practiced, but rather sporadically. During the last few years there has developed definite trend to its more often and satisfactory use. Various factors have brought this about, the most important being:

1. An economic factor—in that it shortens the period of disability, decreases the time of hospitalization, and lessens the amount of dressings.

2. A cosmetic factor—in that it obviates unsightly scars; replaces objectionable birthmarks, and covers up defects caused by radical surgery.

3. An adjunct of therapy—in that it can be used as a corrective as well as restorative measure in deformities, either congenital or acquired, and thereby aiding the surgeon in establishing as nearly as possible a complete anatomical, functional and physiological result.

During the past few years considerable work by Neuhoff, Loeb and Padgett has been done relative to transferring skin from one individual to another and all with the same result—it cannot be done. Time does not permit a discussion of this, but according to Loeb, there is a certain definite integral of differentiation for individuals skin and this is different from all others.

"Jack of All Trades"

Occupational medicine *might* be defined as that branch of medicine concerned with diagnosis, treatment and prevention of ailments peculiar to various vocations. From even this general definition it is obvious that it is far more complex than the finger-wrapping chores of the old company doctor.

Diagnosis in the early days of occupational medicine was usually limited to ascertaining the extent of physical trauma. Now it combines the best diagnostic acumen of the internist, nearly all the known laboratory procedures of medicine, physics and chemistry plus a liberal dash of F.B.I. technic. These disciplines are necessary as modern occupational medicine deals not only with direct and obvious physical injuries but also encompasses the effects of heat, light, noise, pressure, radiation and a continually multiplying host of chemical agents of known and unknown toxicity. Yet this is not all. The specialist in occupational medicine is often called upon to diagnose, treat and prevent the "noxious" effect of personalities and environments which can sap the health and efficiency of workers. He must truly know the total milieu of the employees he is called upon to counsel and treat.

Ideally, practice in occupational medicine is, and always should be aimed at prevention so that need for definitive therapy is reduced to the vanishing point. This is achieved only through the physician's full understanding of the operational scope of the industry he serves plus close cooperation with the industrial hygienist and the safety department. These plus continual vigilance will bring the actual treatment of industrial trauma and disease to a minimum.

Prepared by
OSMA Committee on Occupational Medicine

Auxiliary News

Questions

The following question was made by a woman from a small Oklahoma town to Auxiliary members attending a district meeting for the White House Conference on Youth: "We have one doctor in our town; we have a nice hospital—but not a single R.N. 'Our' nurse drives thirty miles from another town once a week. Why do we not have qualified nurses and technicians in our community?"

Paramedical Careers

Our answers and suggestions are not pertinent here. But it was a great satisfaction for us, as Auxiliary members, to be able to give some constructive ideas on community planning; and most particularly, to explain what we are doing to extend our Paramedical Careers program.

Formerly called Nurse Recruitment, this project was recently changed to encompass the more than 150 paramedical careers available to youth today, to encourage high school students early to recognize the need and opportunities in these fields.

This is how our program functions: the Auxiliary contacts principals of each high school, explaining the procedure for organizing a Future Nurses' Club in their school. (A name change is in order.) School nurses, teachers or Auxiliary members serve as sponsors. Through regular study meetings (this is in no way a social program), Career Day workshops, visits to local and state hospitals and institutions, and interviews with nurses and technicians, interest is kindled for future training. Annually a Future Nurses' Field Day is conducted, attracting students from clubs throughout the state.

Nurse Loan Fund

The Auxiliary's other project in "follow-through" is our very beneficial Nurse Loan Fund; this fund extends loans to any applicant who has been accepted by any accredited school of nursing in Oklahoma.

Once a young lady has begun her training, our interest does not stop. Personalized courses in grooming and posture, office and telephone etiquette are conducted by some Auxiliaries; transportation is furnished for schools of nursing to attend special instructional or regional meetings; graduating seniors are given teas and recognition ceremonies by many Auxiliaries.

These two constructive Auxiliary projects, Paramedical Careers and Nurse Loan Fund, are not only assisting physicians, hospitals, and laboratories—they demonstrate our group action toward bettering community health.

Book Review

SURGERY IN WORLD WAR II. NEUROSURGERY, VOLUME I, Office of the Surgeon General, Department of the Army, U. S. Printing Office, Washington, D.C., 1958, pp. 336. Price $9.00

This is a volume that most general surgeons and neurosurgeons might like to have in their library. "This story, as in all other volumes of the history of medical department in this war, includes a frank statement of errors and failures as well as a record of brilliant success achieved in this specialty. . . . It was the unconquerable spirit which underlay the brilliant record of neurosurgery in head injuries in World War II." This volume covers administrative considerations and head injuries. It is of historical and practical interest. This and other related volumes now being published should be available in the event of an atomic disaster, for all to profit by the experiences and planning of recent past years. The description of clinical problems and management of head injuries by sharp and blunt trauma, missile and blast are excellent.—*John A. Schilling, M.D.*

Deaths

GERSTER W. BROWN, M.D.
1903-1959

Gerster W. Brown, M.D., 56-year-old Oklahoma City physician, died near Eagle, Colorado, September 4, 1959.

Doctor Brown, a native Oklahoman, graduated from the University of Oklahoma School of Medicine in 1930. He specialized in Industrial Surgery.

During World War II, Doctor Brown served as a Lt. Commander, USNR, at a base hospital in New Guinea.

O. E. HOWELL, M.D.
1877-1959

O. E. Howell, M.D., 82-year-old Norman physician, died September 13, 1959.

A native of Jameson, Missouri, Doctor Howell graduated from Central Medical College, Missouri in 1900. He began his practice in Independence, Missouri, moving to Creek Nation, Indian Territory in 1904. Twenty-five years later, Doctor Howell moved to Norman where he practiced until his retirement in 1942.

In 1948, Doctor Howell was honored for his years of service to the medical profession when the Oklahoma State Medical Association presented him with an Honorary Membership.

O. R. GREGG, M.D.
1885-1959

O. R. Gregg, M.D., 75-year-old Norman physician, died August 23, 1959.

Doctor Gregg graduated from Southwestern School of Medicine and Hospital, Kansas City, Missouri in 1908. Before moving to Norman in 1948 to direct the Cleveland County Health Department, he held a similar post for the McClain-Choctaw health unit at Hugo. Prior to that time he had been in private practice in Enid.

In addition to his work with the County Health Department, Doctor Gregg served for a time as medical director of the Cerebral Palsy Institute in Norman.

Earlier this year he was honored for his years of service to the medical profession when the Oklahoma State Medical Association presented him with a Fifty-Year Pin. In April the association awarded him an Honorary-Life Membership.

NATHAN BOGGS, M.D.
1879-1959

Nathan Boggs, M.D., who completed 50 years of medical practice last year, including 34 years in Oklahoma City, died August 31, in Guymon, Oklahoma.

Born in Richard Center, Wisconsin, Doctor Boggs graduated from Rush Medical School, Chicago, in 1906 and began his practice two years later in Kansas City, Missouri. He moved to Oklahoma City in 1918 where he remained until moving to Goodwell in 1952. In Goodwell, he served as staff physician for Panhandle A & M College.

In 1957, Doctor Boggs was honored when the Oklahoma State Medical Association presented him with a Life Membership in recognition of his years of service to the medical profession.

ROBERT F. LOUGHMILLER, M.D.
1912-1959

Robert F. Loughmiller, M.D., 46-year-old Oklahoma City physician, died September 22, 1959.

A native of Oklahoma City, Doctor Loughmiller graduated from the University of Oklahoma School of Medicine in 1937. From 1938 to 1944, he was a flight surgeon with the rank of Lieutenant Colonel. In 1945, he established his practice in Oklahoma City where he specialized in eye, ear, nose and throat.

Doctor Loughmiller was a member of the American Board of Ophthalmology and Otolaryngology.

PHYSICIAN PLACEMENT

Dermatology

Thomas E. Slimp, M.D., 323 West Livingston Place, Metairie, Louisiana, VE 3-4322, age 42, married, Syracuse Medical School, 1950, board certified January 1, 1960. No military obligations, available January 1, 1960.

General Practice

Donold D. Arthurs, 3240 N.W. 26th St., Oklahoma City, Oklahoma, age 27, married, Oklahoma University School of Medicine, 1958, no military obligations, available immediately.

Johnny Bill Delashaw, U.S.P.H.S. Hospital, Wyman Park Drive and 31st Street, Baltimore 11, Maryland, age 27, married, University of Texas Medical Branch, 1959, available July 1960.

D. H. Bessesen, M.D., Grand Canyon Hospital, Grand Canyon, Arizona, age 61, married, University of Minnesota, interested University Health Service, available October 1, 1959.

Sherman Allen Hope, M.D., 1105 Yale Ave., Panama City, Florida, PO 3-6656, age 27, married, University of Oklahoma School of Medicine, 1957, available July 1960.

Paul J. Vega, M.D., 6070 Orleans Ave., New Orleans, Louisiana, Au-2584, age 26, married, Louisiana State University, 1956, no military obligations, available now.

Thomas S. Whitecloud, M.D., 858 Market Street, Pascagoula, Mississippi, age 45, married, Tulane, 1943, veteran, has interest in teaching, availability date depends on situation.

Internal Medicine

Richard I. Hochman, M.D., 37, Badger Road, Annapolis, Maryland, 31, married, New York University, 1952, available October 1, 1960.

Van B. Saye, Jr., M.D., 1230 Brockenbraugh Court, Metairie, Louisiana, VE 5-1968, age 28, married, Medical College of Georgia, 1954, Air Force Reserve, available July 1, 1960.

Locum Tenens

Arnold Giesbrecht, M.D., Hallock, Minnesota, age 34, married, graduate Winnipeg, Manitoba, 1957, prefers suburban or locality close to cities.

Frank H. Cooper, M.D., will complete internship at St. John's Hospital, Tulsa, on July 1. Would like to have locum tenens in general practice for one week, available after July 1, 1959.

James D. Green, M.D., second year resident in Internal Medicine at St. John's Tulsa, desires one year of Internal Medicine practice before taking third year of training. Prefers clinic in city of 50,000 or greater population.

Obstetrics and Gynecology

Lynn W. Abshere, M.D., 708 N.E. 14th, Oklahoma City, CE 6-8087, age 31, married, University of Oklahoma School of Medicine, 1956, American College of OB-GYN, no military obligations, available July 1, 1960.

Gerald R. Keilson, M.D., Medical Arts Building, Dallas, Texas, age 31, married, University of Texas, 1953, board qualified, veteran, available in July 1960.

Milton Gardner Mutch, Jr., M.D., 423 Mills Avenue, Fargo, North Dakota, age 31, married, University of Minnesota, 1955, board eligible upon completion of fellowship, veteran, available July 1, 1959.

Nejdat Mulla, M.D., 1110 Belmont Avenue, Youngstown, Ohio, age 36, married, University of Geneva, Switzerland, 1952, American College of OB-GYN, not eligible military service, available July 1, 1960.

Harold G. Ray, M.D., 212 Darien Place, Box 503, Balboa Heights, Canal Zone, age 28, married, University Arkansas School of Medicine, 1955, now in active reserve, available July 1, 1960.

Alvon C. Winegar, M.D., 1940 Michigan, WA 6-6834, Benton Harbor, Michigan, age 41, married, Wayne University, 1942, no military obligation. available early 1960.

Surgery

(Name on Request) 32 years old, married, Tulane, 1952, veteran, board eligible.

Johnson P. Graves, M.D., Box 142, Pulaski Heights Station, Little Rock, Arkansas, age 36, married, Arkansas School of Medicine, 1950, board eligible, no military obligations, available Fall 1959.

Urology

Charles Lee Reynolds, Jr., M.D., 5012 Rockport Drive, Dallas, Texas, age 32, South Western Medical College, Dallas, 1949, board eligible, married, no military obligations, available July 15, 1960.

Have You Heard?

FRANCIS W. PRUITT, M.D., is the new coordinator of medical education at Tulsa's Hillcrest Medical Center. Doctor Pruitt, a Brigadier General, has served twice as Chief of Medicine at Walter Reed Medical Center in Washington, D.C. In addition to his work in medical education, he will direct Hillcrest's outpatient department.

JOAN K. HIETT, M.D., has joined the staff of the Altus Medical and Surgical Clinic at 1101 East Pecan. Doctor Hiett limits her practice to pediatrics.

ROBERT E. ENGLES, M.D., and his wife, ESTELLE ENGLES, M.D. have joined the Doctors Leroy and Raymond Engles, in practice at the Engles Clinic, Durant. They came to Durant from Austin, Texas where he had been with the U.S. Public Health Service and she was with the Texas State Health Department.

ED BRASHEAR, M.D., has recently opened his offices in Barnsdall. Doctor Brashear is a graduate of the University of Oklahoma School of Medicine.

J. WALKER MORLEDGE, M.D., has been named medical director in charge of clinical education at Mercy Hospital, Oklahoma City. Doctor Morledge served as chief of staff at Mercy from 1937 to 1958. For the past year and a half, he has been head of the Department of Medicine at McCord Zulu Hospital, Durban, South Africa.

GERALD C. ZUMWALT, M.D., recently with the U.S. Air Force, has opened his offices in Sapulpa. Doctor Zumwalt attended the University of Oklahoma School of Medicine and is a native of Vinita.

Coming Meetings

UNIVERSITY OF OKLAHOMA MEDICAL CENTER
POSTGRADUATE PROGRAM*
Individual Postgraduate Courses

BASIC ELECTROCARDIOGRAPHY — February 29 through March 5.

OPTHALMOLOGY-OTOLARYNGOLOGY SYMPOSIUM—March 3 and 4.

OBSTETRICS-GYNECOLOGY SYMPOSIUM—March 5.

ADRENAL STEROIDS—March 24, 25, and 26. (Third Oklahoma Colloquy on advances in Medicine.)

ORTHOPEDIC SYMPOSIUM—April 22 and 23 (this date is tentative).

CARCINOMA OF THE SKIN—May 6 and 7. (Sixth Annual Combined Surgery, Radiology, Pathology Symposium.)

OKLAHOMA ASSSOCIATION OF HOUSE STAFF PHYSICIANS—Date to be determined.

SERIAL POSTGRADUATE COURSE
Postgraduate Division
Oklahoma City, Oklahoma
1959-1960

Wednesday Short Courses

3:30 to 8:30 p.m.

Sept. 9	Renal Diseases Guest Lecturer: Maurice B. Strauss, M.D. Boston, Massachusetts
Oct. 14	Endocrine Disorders
Nov. 11	Surgical Diagnosis Symposium
Dec. 9	Renal Diseases in Childhood
Jan. 13	Carl Puckett Memorial Lecture and Infectious Diseases Symposium
Feb. 10	Rehabilitation of the Cardiac Patient Guest Lecturer: William Tucker, M.D., Washington, D.C.
Mar. 9	C. B. Taylor Lectureship and Urology Symposium—Guest Lecturer to be announced
Apr. 13	Anesthesia for the Part-time Anesthetist
May 11	Neurological Diseases in Childhood
June 8	Surgery

*Further information may be obtained from the Office of Postgraduate Education, University of Oklahoma School of Medicine, 801 N.E. 13th Street, Oklahoma City, Oklahoma.

6th ANNUAL CANCER SYMPOSIUM

December 5, 1959 — **Skirvin Hotel**
Oklahoma City

The 6th Annual Cancer Symposium, American Cancer Society, Oklahoma Division, will be held at the Skirvin Hotel, December 5, 1959. Subject of the meeting will be "Cancer of the Breast."

THE UNIVERSITY OF TEXAS
POSTGRADUATE SCHOOL OF MEDICINE
Course in Cardiology

December 7-11, 1959 — **Texas Medical Center**
Houston, Texas

The University of Texas Postgraduate School of Medicine has announced the James J. and Una Truitt Lecturer for the year 1959 will be Paul Wood, O.B.E., M.D. (Melbourne), F.R.C.P. (London). The guest lecturer from London will present a course in cardiology at the Texas Medical Center December 7-11.

For further information write to Office of the Dean, The University of Texas Postgraduate School of Medicine, 410 Jesse Jones Library Building, Texas Medical Center, Houston 25, Texas.

AMERICAN HEART ASSOCIATION
32nd Annual Scientific Sessions

Trade and Convention Center — **October 23-25, 1959**
Philadelphia, Pennsylvania

The 32nd Annual Scientific Sessions of the American Heart Association will be held at the Trade and Convention Center in Philadelphia, October 23-25, 1959. Forms for registering and for reserving accommodations are now available from the Association, 44 East 23rd Street, New York 10, New York.

41st Annual Meeting
of the
SOUTHWESTERN MEDICAL ASSOCIATION

November 5, 6, 7, 1959 — **Roswell, New Mexico**

The 41st Annual Meeting of the Southwestern Medical Association in conjunction with the New Mexico Chapter, American Academy of General Practice will meet November 5, 6, 7, 1959 at Roswell, New Mexico. Topic for the meeting, which is approved for 12 hours credit (Category 1) by the AAGP, will be Pediatric Medicine and Surgery.

AMERICAN FRACTURE ASSOCIATION

November 4, 1959 — **Roosevelt Hotel**
New Orleans, Louisiana

The 20th Annual Meeting of the American Fracture Association will be held in the Roosevelt Hotel, New Orleans, Louisiana, on November 4, 1959. Details may be obtained by writing to H. W. Wellmerling, M.D., Secretary-General, The American Fracture Association, 610 Griesheim Building, Bloomington, Illinois.

44th SCIENTIFIC ASSEMBLY
Interstate Postgraduate Medical Association
November 2-5, 1959 **Palmer House**
Chicago, Illinois

The 44th Scientific Assembly of the Interstate Postgraduate Medical Association will be held in the Palmer House, Chicago, Illinois, November 2-5, 1959. Advance registration fee of $10.00 should be mailed to Erwin R. Schmidt, M.D., Box 1109, Madison 1, Wisconsin. Hotel reservations should be directed to the Palmer House, Chicago.

AMERICAN COLLEGE OF ALLERGISTS
Graduate Instructional Course and Annual Congress
February 28-March 4, 1960 **The Americana Hotel**
Bal Harbor
Miami Beach, Florida

The American College of Allergists will hold a Graduate Instructional Course and Annual Congress February 28 to March 4, 1960 at the Americana Hotel, Bal Harbor, Miami Beach, Florida. For further information, contact John D. Gillaspie, M.D., Treasurer, 2049 Broadway, Boulder, Colorado.

MISCELLANEOUS ADVERTISEMENTS

17 BED hospital, clinic and equipment for sale. Prefer to sell all to one buyer in attractive package offer, but will consider other offers. Equipment includes X-ray, fluoroscope, Medco Sonalator, BMR, diathermy, etc. In settling estate of Charles W. Ohl, M.D., facilities and equipment will be sold at considerably less than original cost, and time payments may be arranged. Contact Walt Allen, Co-Executor, 116 North 4th Street, Chickasha, Oklahoma.

WANTED: General Practitioner—Five man established group. Prefer locum tenens for one year. Will meet competitive salary requirements for qualified man. Contact H. B. Landholt, Business Manager, Physicians & Surgeons Clinic, Box 711, Holdenville, Oklahoma.

WANTED: Internist to join old established group in town of 10,000 population in West Texas. Need not be Board certified but with adequate residency training. Write Key A, THE JOURNAL, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

WANTED: University Health Physician, man or woman. Salary depending upon experience. Approximately 9,500 students. Fifty bed hospital. Contact Roxie A. Weber, M.D., Director University Health Service, Oklahoma State University, Office of University Infirmary, Stillwater, Oklahoma.

PHYSICIAN NEEDED in Konawa, Oklahoma. Population 3,000 with no M.D. Building and some equipment available; also possibility that community will construct and equip modern clinic. Contact Robert D. Peercy, Box G, Konawa.

INDUSTRIAL PHYSICIAN, Oklahoma City, covering 2,000 employees, maximum salary $12,500 depending on experience and training. Write Key G, THE JOURNAL, Oklahoma State Medical Association, P.O. Box 9696, Shartel Station, Oklahoma City, Oklahoma.

FOR SALE: McKesson Waterless Basal Metabolism Machine approximately 4 to 5 years old. In good condition. Complete with masks, stand and oxygen tank. Price $200.00. Write Key H, The Journal, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

FOR SALE: Worden walnut consultation room furniture, new condition. Contact W. P. Jeter, M.D., 912 S.W. 50th, ME 2-1556, Oklahoma City.

WANTED: Surgeon to join old established group in town of 10,000 population in West Texas. Need not be Board certified but with adequate residency training. Write Key A, THE JOURNAL, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

PHYSICIAN NEEDED in Weleetka, Oklahoma; a city with population of 1500 and trade territory of 3000; Clinic available; community will remodel building to suit physician and offer other cooperation in the establishment of a practice; New hospital being built within 10 minutes from clinic. Contact: Bob Carroll, Cashier, State National Bank; Phone Sunset 6-2311.

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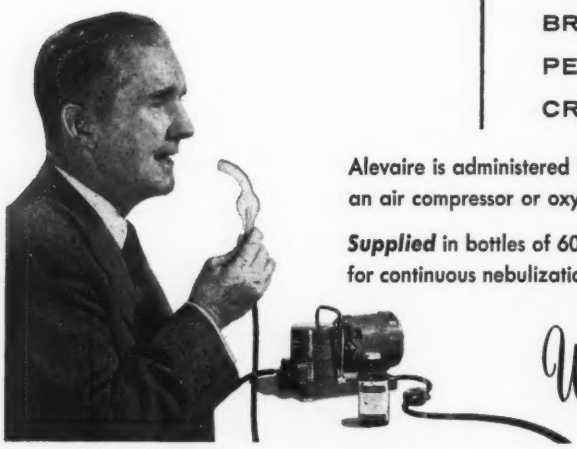

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